This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

For Volunteers &c.

FIELD POCKET-BOOK
FOR
THE AUXILIARY FORCES

SIR GARNET J. WOLSELEY

MACMILLAN & CO.

600022606M

FIELD POCKET-BOOK

FOR

THE AUXILIARY FORCES

BY

COLONEL SIR GARNET J. WOLSELEY
C.B., K.C.M.G.
ASSISTANT ADJUTANT-GENERAL, HORSE GUARDS

BIBLIOTHECA · BODLEIANA ·

London:
MACMILLAN AND CO.
1873

231. c. 148.

LONDON:
PRINTED BY WILLIAM CLOWES AND SONS,
STAMFORD STREET AND CHARING CROSS.

PREFACE.

It was suggested to me by Messrs. Macmillan and Co. that a little handbook for the Auxiliary Forces might with great advantage be compiled from the professional information supplied in the "Soldier's Pocket-Book." I have therefore endeavoured in the following pages to select the portions that would be most useful and instructive to the officers, non-commissioned officers, and privates of the Yeomanry, Militia, and Volunteers, condensing the matter as much as possible with a view to producing a small work that could be sold at a price within the reach of all ranks.

I had the good fortune to be intimately associated for many years with the splendid Militia of Canada, and am vain enough to think that this little work will prove useful to its members and to their comrades in the other British colonies.

Those who would desire to go further into the various subjects referred to, should study the "Soldier's Pocket-Book," from which the following information has been extracted.

London, March, 1873. G. J. W.

CONTENTS.

PART I.

PAGE
Preface iii
List of abbreviations in work vi
Discipline 1
Officers 4
  „ in action 7
  „ field equipment of 8
  „ messing of 8
  „ kit of 8
What all officers should carry in their heads 10
Authorized allowance of baggage . . 11
Stores 11
Supplies of food 12
Rations 14
Camp equipment 16
Tents 20
Ammunition 20
Clothing and necessaries 21
Selecting the site for a camp 21
Internal arangement of camps . . . 22
Tent pitching 26
Cooking places 31
Latrines 33
Watering places 33
Drainage of camps 35
Rocks for arms 35
Stone paths in camp 36
Temporary *sentry boxes* 36
PAGE
Subjects for daily orders 36
Daily routine of duties in camp . . . 36
Bivouac 38
The art of campaigning 39
Cooking 41
Boiling 42
Roasting 42
Cooking receipts 42
Diet 45
Medical and surgical hints 47
Sore feet from marching 49
Restoration of a half-drowned man . . 49
The weather 50

PART II.

Embarkations 51
Medical arrangements 51
Provost-marshal 52
Employment of cavalry in action . . 53
  „ „ infantry „ . . 55
  „ „ artillery „ . . 61
Street fighting 63
Defence of posts 64
Outposts 65
Sentries and vedettes 68
Flags of truce 70
Deserters and spies 70
Patrolling 74

PAGE
Reconnaissances 75
Subjects to be reported upon. . . . 76
Scouting. 80
Military indications 81
Marches. 82
Rate of marching 84
Rules for crossing temporary bridges . 86
Advanced guards 86
Rear „ 88
„ „ during a retreat . . 89
Baggage and its transport 91
Baggage-master 92
Animals for transport purposes . . . 92

PAGE
Grooming 93
Shoeing 94
Destruction of railways 95
„ „ rolling stock 96
„ „ telegraphs. 97
Movements by railway 98
„ of infantry by railway. . 98
„ „ cavalry „ „ . . 99
„ „ artillery „ „ . . 100

APPENDIX.

Ration return 102
Requisition for camp equipment . . 104

LIST OF ABBREVIATIONS.

A.G	—Adjutant General.
A.A.G.	—Assistant Adjutant General.
A.Q.M.G.	— Do. Quarter-Master-General.
A.S.C.	—Army Service Corps.
A.H.C.	—Army Hospital Corps.
B.L.R.	—Breech Loading Rifle.
B.M.	—Brigade Major.
C.O.	—Commanding Officer.
C.-in-C.	—Commander-in-Chief.
C.R.E.	—Commanding Royal Engineers.
C.R.A.	—Commanding Royal Artillery.
F.O.	—Field Officer.
G.O.	—General Order.
G.O.C.	—General Officer Commanding.
H.A.	—Horse Artillery.
M.L.	—Muzzle Loader.
M.O.	—Mounted Officer.
N.C.O.	—Non-Commissioned Officer.
P.M.	—Provost-Marshal.
P.M.O.	—Principal Medical Officer.
Q.M.	—Quarter-Master.
Q.M.G.	„ „ General.
R.A.	—Royal Artillery.
R.E.	—Royal Engineers.
S.B.	—Smooth Bore.
S.A.A.	—Small Arm Ammunition.
S.O.	—Staff Officer.
S.S. for War	—Secretary of State for War.
S. Sergt.	—Staff Sergeant.
W.O.	—War Office.

DIAGRAMS.

PAGE
Plan of Infantry Camp 28
„ Cavalry „ 29
„ Artillery „ 30

FIELD POCKET-BOOK

FOR

THE AUXILIARY FORCES.

PART I.

Discipline.—To tell a Militia or a Volunteer regiment that it is '*as good as any battalion of the Line,*' can never be strictly telling it the truth. An inspecting officer who knows the disadvantages that the auxiliary forces labour under, is good-naturedly anxious to say something encouraging to a corps that has turned out very creditably, and, in his desire to be agreeable, he does not always sufficiently weigh the precise meaning of the words he makes use of; like compliments generally, this praise is not, and never can be, strictly true. A corps that is not permanently embodied cannot be so good, or in any way such an effective military machine, as one whose men are always with their colours. Its officers may be highly instructed, its men first-rate marksmen, and all well drilled; but it is impossible that it can have the cohesion and the mutual trust and confidence that characterise regiments of the Line, constituting what is generally known by the term 'discipline.' There is no intention here to find fault, but merely to point out why corps that are only brought together for short periods at long intervals can never be as perfect as the regular army. There is no reason, however, why all should not endeavour to work up to the highest possible efficiency compatible with their condition of service. The difference between them and Line regiments is not in their respective knowledge of drill; it is in discipline, an element that can neither be bought nor learnt from books, nor suddenly created. Of all military qualities it is, like the hardest and most valuable timber, of the slowest growth. It is a virtue imparting, to well-organised military bodies, a species of mechanical order, by means of which the combined force of the many is made subservient to one directing will, so as to be easily concentrated upon any one point or in any one direction. In drilling large bodies of men to work together, so that their physical powers may be combined for military purposes, it is necessary to impress their thoughts as well as their actions with a clock-like *regularity; their minds* must be acted upon more forcibly than their bodies.

The work to be performed by a soldier cannot, like all ordinary physical labour, be compared to that of raising so many pounds daily up a certain height. The object for which he exists, namely, to defend his Queen and country, and their honour, can only be achieved by fighting; he must, therefore, be prepared at all times to encounter great danger, undergo excessive fatigues, endure cheerfully every species of pain, wound, discomfort and privation, and finally to look sudden death frequently in the face with composure. The animal courage and self-abnegation necessary for the due development of these, man's most noble qualities, are not inherited by every one; yet our naval and military annals prove that, by some process or other, we have been able to meet our enemies with men to whom these qualities have been imparted: this has been effected by means of discipline.

To enable man to conquer the dread of sudden death, and to expose his life fearlessly to a storm of shot and shell, something more than physical training is necessary. The body may be well drilled in all military movements, but to perform them efficiently and without flinching when the whistle of each bullet as it flies past your ear is the death-knell of a comrade, the mind also must be well drilled: the reasoning powers must have been taken hold of, and so exercised in obeying the orders of others, that muscle and will work together in a mechanical unison after a well-understood fashion and well-learnt rules, so that the same course is always followed under similar circumstances.

Without discipline there can be no real bond of confidence between officers and men, or even between the privates themselves, and without it, no great results can ever be attained. In a well-disciplined regiment, men can afford to look steadily to their front, keeping their attention fixed on the enemy: they have confidence in their comrades to the right and left: it is not necessary for them to look behind to see if they are duly supported. It is discipline that begets this confidence.

It is discipline that distinguishes a mob from an army. A large body of men may be able to move together without confusion, they may be able to handle their arms by word of command, may be fair marksmen, but without discipline they never can be effective as a military force, or be little better than a mob, as dangerous to their country as to its enemies. It is an element that when existing in an army is easily recognised, and its absence is perceptible at a glance. All old soldiers know what it is, although it is difficult to describe it in words. The most prominent outward sign of its existence in a regiment is the deference shown to military rank, especially the respect paid by the private to his officers and non-commissioned officers.

Before any one can learn to command well, he must have first learnt to *obey. Obedience must be* rendered unhesitatingly; orders must not be *questioned, nor the advisability* of instant compliance with them made a subject for discussion. The action of obedience must be mechanical in the quickness with which it follows the order received, although in carrying it out the soldier, no matter what is his rank, can prove that he is something more than a mere machine by the intelligence he displays in executing it. The mind of the well-disciplined soldier has been so effectively taken hold of by the strict course of drill he has gone through, that he turns to the right or left when ordered as mechanically as the locomotive goes backwards or forwards at the wish of the engine-driver. The engine obeys mechanically; the soldier obeys not only mechanically but intelligently, and the more intelligent ability he throws into his mechanical obedience, the more effectively he performs his duty.

Respectful obedience is the only true basis upon which sound discipline can rest. It must not have its origin in fear, or in the dread of punishment. In armies composed of uneducated barbarians, this dread may be beneficial, but with us ready obedience should be rendered from the conviction that the orders emanate from a superior, not only in rank but in knowledge. How essential is it, therefore, that all officers should be thoroughly well-grounded in a knowledge of their duty.

Drill is the discipline of the body, and it is essential that military movements should be performed with precision; the discipline of the mind is, however, a hundredfold more important to the efficiency of soldiers. The constant practice of drill, where all ranks have to render instantaneous and silent obedience to the commands of their superiors, tends materially to discipline the mind. The efficiency of a regiment is estimated in a great measure from the manner in which it drills: if there is talking in the ranks, it is a sure sign that its discipline is of a low order. Complete silence when on parade or at drill is a point to be particularly attended to. No matter what may, in your opinion, be going wrong, you must keep this opinion to yourself: if you remark upon it, some one is sure to answer, until every one begins talking. The Babel of tongues thus raised creates a disorder that under fire would certainly lead to disaster. In all moments of confusion, remember that the first step towards the re-establishment of order is the hushing of all voices. This is a subject of such vital importance that it should be the first lesson taught to every recruit; without complete silence in the ranks, there cannot be efficiency.

Life in a highly-disciplined corps is always pleasanter than in one where order and regularity are not strictly maintained: all old soldiers will confirm this statement, for where the daily routine of life is conducted upon fixed and well-devised principles, comfort is insured, and general contentment follows upon it. Cleanliness, we are told, is akin to godliness; it is still more closely allied to discipline. The manner in which a regiment turns out for evening roll-call after a march, is a fair indication of its efficiency. If *the men are dirty* and slovenly, it is evident that they are not properly looked after by their officers. Where cleanliness is neglected, smartness of appearance is impossible. A dirty or a slovenly fellow can have little self-respect; he is indifferent to the credit of his corps, and is therefore, by his own showing, unfit to be a soldier of Her Majesty's. A certain amount of swagger is a very admirable quality for soldiers, who should feel the highest pride in their profession. Many civil occupations are doubtless very commendable as necessary for the well-being of society, but any old woman could compete with you in most of them, whilst the work of the soldier can be done only by a man, and only done well by one who is fully impressed with its importance, and who feels how ennobling it is to take his place amongst those intrusted with the most honourable of human duties.

To paraphrase the saying of an ancient orator who, when asked what were the three qualities most essential for a public speaker, we may with truth say that the elements most necessary for the well-being of an army are—1st, Discipline; 2nd, Discipline; and 3rd, Discipline. In order that you may assist in maintaining it, remember to be strictly silent in the ranks, to be deferential to your superiors, to render prompt obedience to orders, and finally to endure cheerfully the hardships and disagreeable occurrences that must be daily attendant upon a soldier's life.

Officers.—An inefficient officer is a swindle upon the public. If an officer feels that his professional knowledge, and ability to command, are not equal to his rank, he should spare no pains to learn his work; if he fails to do so, or if after trial he finds that he cannot acquire the necessary information and power to command, he willingly becomes a sharer in the swindle. It is of more importance in the auxiliary forces than in the Line that the officers should possess a high standard of professional knowledge. In a regular regiment, where all ranks are well-grounded in their work, the shortcomings of one inefficient officer are counterbalanced by the general knowledge possessed by those around him. The machine in the use of which he is daily engaged has been running so long, and is in such good order, that it goes along easily, requiring but little exertion from all concerned to keep it efficient. It is different with Militia or Volunteer Battalions, where the machine is only worked for short spells, and at great intervals of time; the professional knowledge possessed by their officers and non-commissioned officers is also more theoretical than practical. To compensate for these disadvantages, their theoretical knowledge should be of a high order. They should be thoroughly well acquainted with the drill book, the regulations of the service, and the Mutiny Act, and all who can possibly manage it should do duty with a Line regiment for a month or two.

It is disgraceful for an officer to know less of his profession than those under his command. Drill, he must learn practically on parade, but he can acquire a vast amount of military information by study. Officers of the auxiliary forces, who live away from their men, and who, from passing the greater portion of the year in civil life, have not opportunities for acquiring professional knowledge by daily practice, should be even greater students than their brothers in the Line. Public attention has of late been so turned to military subjects, that we have now in England a vast amount of military literature, enabling all to learn who desire to do so. In order, therefore, that you should really deserve the respect of those under your command, take care that your professional knowledge is of a high order. Your men, feeling that you know your work thoroughly, will look up to you, and in moments of danger will turn to you for guidance. You must learn to feel that the possession of a captain's commission does not confer upon you the professional knowledge that every captain should possess.

The only rewards that are justly our due are the gratitude of our country and the praise of our superiors. Company officers should remember that it is always in their power to bestow the latter, and they should never lose an opportunity of calling attention publicly to the gallantry of their men, distinguishing individuals and holding them up to the admiration of others. In an army praise is the greatest of all moral levers if administered with discrimination; it is a trump card, costing nothing, that is always at the disposal of the officer, be he commander or captain, which enables him to win if he knows how to use it. The bestowal of praise creates an intimacy between the giver and receiver which it is most desirable to establish between all ranks. Study to be familiar without being vulgar, and habit, if not intuition, will soon enable you to be gracious and intimate with your men without any loss of dignity. In all regiments some officers are immense favourites with their men, and others the reverse. This is especially the case on active service, where community of danger and constant association create comradeship unknown in peace. Many privates only know their officers as men who award them punishment, and although they know they are always treated with justice, such a condition of affairs must ever be prejudicial to the interests of our service; you must be intimate with your men before they will love you, and they must love you before you can hope to get the most out of them. You should study their prejudices, learn their individual characters, and by a knowledge of their respective sensitiveness, guard against wounding their feelings, for in every company there will be men of actual refinement in comparison to others. Strive to raise the majority to a level with that small minority.

The officer should take a lively interest in their amusements, encouraging them in the practice of all manly sports. In fine, he should sympathise with their likes and dislikes, their pleasures and annoyances, being ready at all times to listen attentively to their grievances, be they supposed or real, until at last they regard him as one of themselves, a companion and a friend. *For and with* such a man they will brave any danger or endure any amount of privation. Upon all occasions appeal to their honour and chivalrous feelings: show them that you have confidence in them and trust them. Cease to treat them as unreasoning children unable to take care of themselves. You will thus develop and create in their breasts feelings of honour even if they had previously been devoid of them. In your punishments make the most marked distinction between ordinary offences and those committed when on duty, treating the latter with great severity. In fact, spare no pains to create and foster the growth of military spirit, by impressing upon all ranks the importance of their duties. Whatever may be the reason of it, it is nevertheless a fact that up to the present time we have never had an English commander who succeeded in calling forth any great enthusiasm for himself or the cause in hand. We are too prone to fall down before the great Duke, and think that everything he did was right, and that his method with soldiers was the best. Without wishing for a moment to depreciate either the General or his services, let any one read the history of his wars, and what he accomplished, and then picture to himself what the Duke might have done if his soldiers had had for him the feelings that the French had for their Emperor. Napoleon was above all a student of character and of the passions and feelings that influence men's conduct. By means of spirit-stirring proclamations, by appeals to their love of glory and all those points upon which he knew Frenchmen to be susceptible, he was able to extract from his soldiers everything that they were capable of. It is not true that Englishmen are utterly devoid of such high sentiments, but it is only special nourishment and treatment that will develop feelings so long ignored. Let any General arise who knows how to do so, and a new era of victory will be arrived at in British history. Officers of all ranks should ponder over this subject, and in their own sphere, no matter how humble that may be, let them endeavour to call out the finer and better qualities of those serving under them. No man can respond with greater alacrity than the British soldier will, when an officer who understands him makes an appeal to his honour, his love of country, his loyalty, and to all those subtle but powerful influences which alone can convert mobs into armies. 'The greatest talent of a General,' says Plutarch, 'is to secure obedience through the affection he inspires.' In fact, if you want to win battles, make yourself loved by those who serve under you.

On service discipline deteriorates when but little attention is paid to dress, and when the men wear almost what they like. It is an incalculable drawback to an officer who is ordered on active service in command of a regiment, never to have had experience of real war and actual campaigning; he is at a loss how to act; to keep up the strict discipline of the home garrison town in all its minutiæ, would be as impossible as it would be mad to attempt it. To know where to relax, where to remain firm and where to tighten the reins, requires the exercise of great common sense, aided by experience in the customs of war. Allowance under all circumstances must be made for men who march daily. They cannot be expected to be shaved and have their clothes as well brushed as if in barracks; but without wearying, or in any way bullying them, a great deal may be done by officers acting upon a good system.

The greater the individuality you give to the soldier himself and to his battalion, the more he feels that his individual conduct is of importance. No pains should be spared by officers in impressing upon their men the consequence that attaches itself to the behaviour of each of them. Make a man proud of himself and of his corps, and he can always be depended upon. He must believe that his duties are the noblest that fall to man's lot. He must be taught to despise all those of civil life. Soldiers, like missionaries, must be fanatics. An army thoroughly imbued with fanaticism can be killed, but never suffer disgrace; Napoleon, in speaking of it, said, 'Il en faut pour se faire tuer.'

It is difficult to devise punishments for all crimes not to be punished by death. This is particularly the case on the march. All the dirty fatigue-duties about a camp should be performed by defaulters. Care is required that punishments awarded may not in any way whatever affect the men's health or reduce their strength. When a force is marching daily all extra drills must be avoided, lest the men to be punished should be overworked by them.

Soldiers, particularly old soldiers, are naturally grumblers. The self-abnegation which is necessary on service finds a safety-valve in a 'good growl.' The best and most faithful servants are often the greatest grumblers. This disposition cannot be treated too cautiously and with too light a hand. The tendency should be checked in young officers, for if they grumble, the privates will follow in a chorus that will soon grow too loud.

Officers in action, to be cool and to seem ignorant that any danger exists, is of the first consequence; you must at the same time, however, evince a lively interest in all that is going on: come what may, have a smiling face. If your men are under a fire to which they are not replying, walk about in front of them as they are lying down. I do not mean that you are never to avail yourself of cover, for when skirmishing it is your duty to do so, but under the above-mentioned circumstances the best troops are prone to become unsteady, and it is then the especial duty of officers to set an example of coolness and steadiness. When wounded, officers should take a pride in refusing the assistance of their men to take them to the rear; men are only too fond of helping their wounded comrades out of fire, and when once away, it is difficult to get them back again. All must learn to wait for the ambulance. It should be impressed upon men by their officers that the wounded of a victorious army are always taken care of.

whilst those of the beaten side fare badly. It is more essential, therefore, for the wounded than for others, that their army should win, and the fewer men withdrawn from the front line to take charge of the wounded the greater is their chance of success.

FIELD EQUIPMENT FOR OFFICERS.—It should be of the least possible weight and contain the fewest articles compatible with the maintenance of health. Comfort must be disregarded when men take the field, as it is only a personal matter; but it is essential for the good of the State that they keep themselves in such good health that they are ready at all times to do the hardest work. Englishmen are so fond of their tub, and so particular as to the cleanliness of their persons, that many think it impossible to forego such luxuries; but it is surprising how soon one can learn to do without them. We are too prone to overload ourselves with baggage in the field; it is a saying abroad that 'chaque officier anglais a sa basinoire.' This 'chaff' comes home to us with only too much truth. Formerly, men went campaigning prepared to lead a gipsy life, independent of all supplies in the way of clothes; wars lasted for years then, and the means of obtaining shirts, boots, &c., from home were small. Now, a few weeks is the utmost one can be separated from railway communication, and a few months will probably be about the duration of active operations carried on by regular armies. Supplies of socks, boots, trousers, shirts, soap, towels, &c., should be pushed well to the front in bulk, to be issued as required. The infantry must be content with less than mounted officers, who can carry extra things on their second chargers.

A Committee assembled lately at the War Office has decided that, in future, the baggage of all officers in the field should be restricted to 40 lbs. in weight, as proposed in the first edition of 'The Soldier's Pocket-Book.' The valise therein described as intended to form the bed and contain the kit will most probably be adopted, if not exactly as proposed, at any rate in its general form.*

The Cooking for officers will in future be done by Companies and Troops: cooking utensils, not to exceed 22 lbs. in weight, will be carried for the officers of each Troop and Company.†

An Infantry officer's kit will be as follows:

Worn or carried on the person.—Shako, tunic, trousers, shooting boots, socks (woollen), drawers, flannel shirt, silk pocket-handkerchief, gaiters, clasp-knife, drinking-cup and water-bottle, pocket-book,* map of the country, telescope (having compass attached to it), watch, waterproof coat and haversack.

---

* *This valise is to be seen at the pattern-room, Horse Guards; and at Messrs. Abbott and Anderson, Dodd Street, Burdett Road, Lime Street; and at Messrs. Townley and Co.,* 18 *George Street, Hanover Square: the price is about* 23 *shillings.*

† *A pattern set of cooking utensils weighing about* 21 *lbs. can be had from Mr. T. White, Military Outfitter, Aldershot.*

To be carried in Valise, forming Bed.—A great coat with cape—new pattern (8 lbs.), 1 blanket (4½ lbs.), 1 pr. of trousers (2 lbs. 2 oz.), 1 pr. of shooting boots and 6 spare boot laces (2 lbs. 14 ozs.), 2 pr. of worsted socks (8 oz.), 1 pr. of drawers (10 oz.), 1 flannel shirt (13 oz.), 1 silk pocket-handkerchief (1½ oz.), 1 woollen nightcap (4 oz.), 2 towels (1 lb.), a holdall, containing 1 comb, 1 small hair-brush, 1 tooth-brush, 1 small clothes brush, 1 pr. of scissors, and a metal soap box (1 lb. 6 oz.), 1 small sponge in bag (3 oz.), 1 housewife (4 oz.), 1 tin of dubbing (3 oz.), 1 portfolio, containing pen, ink, and paper (15 oz.), 1 journal book (9 oz.), 1 cholera belt (6 oz.), 1 calico bandage † (3 oz.), 1 candle lamp with a few candles (1 lb.), 1 tin match box (3 oz.), 2 tin plates (14 oz.), 1 cup (in leather bag), containing knife, fork, spoon, pepper and salt pots (1 lb.), 1 India-rubber basin (1 lb.), some tobacco, and 'The Soldier's Pocket-Book' (1 lb.) The total weight of these articles is about 30 lbs., and, as the valise in which they are contained weighs 9 lbs., the whole kit weighs, say, 40 lbs.

The valise forming the bed and holding the above detailed kit measures, when packed, 13 inches in diameter, and is 28 inches long. In folding up the bed the end is first doubled back upon the pillow, the ground sheet in that condition being then rolled round the valise or pillow. In this way no part of the sheet that may have been dirtied from contact with the ground is brought next the bedding. The bag formed by the waterproof sheet and the inside serge covering, when filled at the end of the day's march with hay, straw, leaves, or heather, forms a comfortable palliass, and for health's sake it is advisable to have as much as possible always between the body and the waterproof sheet beneath.

When used unfilled, the ground should be scraped away to form a hollow for the hips; this adds greatly to comfort. When time or circumstances enable you to raise your bed off the ground, never fail to do so: a couple of planks or a hurdle raised at one or both ends upon some stones are sufficient for this purpose.

For ordinary climates one blanket with a good great-coat reaching down to the ankles is sufficient. I strongly recommend having the blanket doubled, and sewed together along one end, and two-thirds along the side.

I have always found it a good plan to sleep in a woollen cap of some sort, particularly when bivouacking. I should like to see one served out to every soldier, to be carried in his shako, to which the end of the cap should be fastened to prevent his losing it when asleep. When tents are used, and it is safe to do so, it is a great luxury to take off your boots at night; if you cannot do this, loosen the lacing as much as possible.

---

* *The most convenient size is 7 in. by 4 in. I strongly recommend metallic memorandum books as the best for field service.*

† *To be carried on person when in actual presence of the enemy.*

Messing is always a difficult matter, for English officers will carry their preconceived notions of comfort into the field with them. They must learn to live as much like the private soldier as possible, and officers commanding battalions should positively forbid the conveyance of private stores with the regimental baggage. As has been stated before, all future campaigns must be of short duration, and any officer who cannot make up his mind to live upon the same fare as his men, had better remain at home with his mother. To attempt to carry about a table or chair in the field is ridiculous; officers, like their men, must eat their dinners sitting on their beds, or in the best way they can.

WHAT ALL OFFICERS SHOULD CARRY IN THEIR HEADS.—Taking it for granted that all officers are well acquainted with the Queen's regulations and the customs of the service, they should endeavour to carry in their heads certain easy mathematical formulæ regarding the measurement of distances, &c. A great deal of course depends on their disposition and their power of perception. Make it a practice to note carefully, even as you whiz along in a railway carriage, the peculiar features of the country, the nature of its fences, &c. This is commonly done by hunting men from habit, so much so that with them it is a mental operation gone through almost mechanically. Accustom yourself to time the pace at which you travel, to count the number of telegraph poles there are to a mile, and so ascertain how many yards they are apart, &c. As time and distance are the two elements upon which all military movements hinge, officers cannot accustom themselves too much to every-day calculations, regarding them as they bear upon their amusements, or their ordinary routine of duty. I think men accustomed to keep horses are more in the habit of doing so than men who don't ride much. To keep a journal is a very good practice; in it should be noted one's daily habits, the events of the day, and general opinions upon them, together with remarks upon the books one reads, the politics of the time, foreign affairs, &c. All such practices tend to impress useful facts on the memory. It is taken for granted that every officer has a fair knowledge of arithmetic, of at least the first two books of Euclid, of plane trigonometry, of algebra, as far as quadratic equations, and of permanent fortification. They should be able at a glance to distinguish the common vegetable productions, including the various species of timber. For facilitating the measurement of distances, &c., every one should know the exact length of his ordinary pace, and be able to pace yards accurately; he should know the exact length of his foot, hand, cubit, and arm from tips of fingers of left hand, to right ear; he should know the height of his knee, waist and eye, and also the exact proportion that his drinking-cup bears to a pint. The more information regarding the strength, composition, and distribution of the contending armies that an officer can carry in his head, the better.

AUTHORIZED ALLOWANCE OF BAGGAGE IN THE FIELD.—According to regulations F.O.s are allowed 80 lbs.; mounted officers not being F.O.s, 60 lbs.; other officers, 40 lbs. These weights include bedding, but not cooking utensils, for which 22 lbs. are allowed for every three officers.

When civilian servants are authorized, each is allowed 20 lbs. of baggage.

STORES.—The controller is the channel through which all demands for the personal equipment of the troops, and all correspondence about rations, supplies, and transport are to pass.*

All demands are to contain full and exact details as to the number and particular description of every article required, according to the authorized nomenclature or vocabulary of stores, and to be made on the prescribed forms.

In the case of stores to be issued upon the authority of a G.O. according to the strength of the regiment, or in certain proportions (for instance, a second blanket per man, the further issue of a pair of boots, or of so many stoves per regiment), the requisition will be transmitted direct to the commissary of supply, no other authority being necessary beyond the G.O., the number and date of which must be quoted on the requisition.

Officers commanding corps when in the field will cause inspections to be made of all equipment after an action, as well as daily when halted after a march, in order that their condition may be constantly known and reported upon when necessary to the G.O.C.

They will immediately make requisitions, in duplicate, direct to the Controller of the division, for the replacement of any articles which may have been lost, or have become unserviceable either from fair wear or through the neglect of individuals.

When stores of any kind are lost, destroyed, or injured, and it is a matter of consideration on whom the expense of repairing or replacing should fall, the G.O.C. will assemble a court of inquiry, composed of officers not belonging to the corps interested if practicable, to investigate the matter.

Controllers, under the authority of the G.O.C., will arrange as to the mode and time of supply, acting in direct communication with the officers to whom the issues are to be made.

---

* *Under the term 'personal equipment' will be included all small arms, accoutrements, small arm ammunition, harness, saddlery, and other appointments supplied for men and horses as well as tools and materials for their repair and preservation.*

SUPPLIES OF FOOD.—The two great necessities in the way of food are bread and meat; armies taking the field now will carry with them steam or field ovens (according to the nature of the service) for baking. The steam oven (on a carriage) is easily drawn along roads by a pair of horses. These ovens will bake in each batch on an average 109 loaves of 3 lbs., or 2 field rations, each. It may be estimated that 4 *batches* of bread will be turned out of one of them by fair tradesmen under ten hours. The field ovens (Aldershot pattern) are made of sheet iron; each weighs about 320 to 342 lbs. (according to the pattern), complete with their equipment of tins, &c., and can bake 100 rations (150 lbs.) at a time. On the Red River Expedition one of these ovens worked by two men turned out 470 loaves (of one ration, 1½ lbs. each) in 12 hours; oven being in good working order and the weather fair.

Supplies of meat must be obtained as much as possible in the country. They will generally be driven to the front from the depôts where they are collected. On the march with a force, meat should be killed every evening as soon as the march is over, so that, as the animals are driven, no transport should be required for it.

Meat.—An ox should not weigh less than 600 lbs.;[*] 800 lbs. may be taken as an average, but a very good one will weigh twice as much: a cow may be a few pounds lighter. A deduction of 50 per cent. to be allowed for skin, offal, head, &c., &c. To find the weight of animals, the formula is $(G \times {\cdot}08)\,L \times 42 =$ weight in lbs.; G being the girth in feet, taken close behind the shoulder, L the length in feet, measured from the fore part of the shoulder-blade to the bone of the tail. A good sheep weighs from 60 to 100 lbs.; 70 lbs. may be assumed as an average: 45 per cent. to be allowed for offal.

A full-grown pig weighs from 100 to 250 lbs.; 25 per cent. only being allowed for offal.

'Animals should be inspected by a veterinary surgeon 24 hours before being killed.' When possible, the meat should be killed from 24 to 48 hours in temperate climates, and 10 or 12 hours in the tropics, previous to being cooked. All animals for food should be in good health; if no veterinary surgeon is at hand, disease may easily be detected by a heavy sluggish look about the eyes, a hot dry feeling about the nose, and by a hanging tongue. The coat is also rough and staring; with cows the teats are hot. All runnings from the nostrils are suspicious.

If there is any suspicion of the rot being in sheep, throw the animal on his back, and push open the eyelids; if it is free from this disease, the eye-ball will be finely streaked with veins of a good healthy and bright red; if they are pale the sheep is diseased.

---

[*] *These weights do not apply to oxen, sheep, &c., that have been fattened for the butcher.*

Meat, especially in hot countries, should always be inspected immediately before it is cooked. The lean and the fat should be in proportion—the latter should be firm, and not too yellow; the meat should not be bloody anywhere. When any doubt exists as to its condition, a doctor should examine it at once.

Salt Meat.—To inspect it have several casks opened; if not full of brine the meat is to be suspected, as any portion of meat not continually covered by it is sure to become bad. Examine portions from both ends and centre of cask; they should be of good colour, well provided with fat. Decomposition can be detected by the smell, by a greenish colour, and by an unnatural softness. When time permits, no salt meat should be accepted in large quantities as good without boiling and tasting pieces at hazard out of several barrels. This is more particularly the case in inspecting salt meat for a voyage.

Care should be taken to keep the casks always full of brine. Fresh brine is made by dissolving salt in water. Brine is considered sufficiently strong when a potato will float in it. Salt ceases to dissolve in the liquid when the latter is completely saturated.

Bread.—'There should be a due proportion, not less than 30 per cent., of crust; the exterior surface should be well baked, not burnt; the crumb should be permeated with small regular cavities, no parts should be heavy and without these little cells; the colour should be white, or brownish from a mixture of bran; the taste not acid, even when held in the mouth.' It will keep good for 4 or 5 days in warm, and for 7 or 8 days in cold weather. 30 per cent is gained in weight in baking.

Flour should be white, with only a small amount of bran in it; there should be no lumps, or if any they should break easily on slight pressure: it must not be acid in taste, and there should be no smell of fermentation or mouldiness. Barrels of flour when stored in houses should occasionally be rolled out into the open air. It was found on the Red River Expedition that flour kept in barrels is not injured in any large quantity when exposed to wet, as a caking of paste forms round it immediately inside the wood of the barrel which preserves the flour within it.

'*Biscuit* should be well baked, but not burnt; of a light yellow colour, and should float in water. When struck, it should give a ringing sound; a piece put into the mouth should thoroughly soften down. It should be free from weevils.'

Tea and *Coffee* can only be judged of by tasting them when prepared for use in soft *water.* Tea should not be bitter; it should have an aromatic smell. Coffee should always be served out roasted and ground (not too fine).

Sugar should be tolerably 'white,' crystalline, not evidently moist to the touch, and should dissolve entirely in water, or leave merely small fragments, which, on examination with the microscope, will be found to be bits of cane.

Salt should be white, crystalline, and dry; it should dissolve completely in water.

Water.—In calculating the quantity of water required per man for drinking and cooking, it may be put down at 6 pints in temperate and 8 pints in tropical climates. A similar amount will just allow men to wash their bodies. In stationary camps, however, the minimum daily allowance per man should be 5 gallons for all purposes, washing clothes included. Horses not doing work will thrive well on 6 gallons a day, but require from 8 to 12 when at work, according to their condition and the nature of the work. A couple of gallons extra should, under all circumstances, be allowed for washing them. Oxen require about 6 or 7 gallons daily.

In selecting positions, particularly those that are likely to be of a permanent character, a careful analysis of the water should be made by a medical man. A fair opinion can be formed as to whether it is wholesome or not, by the appearance of the inhabitants, and by tasting the water oneself. 'It should be transparent, colourless, without odour, and tasteless; well aërated, cool, and pleasant to drink; it must have no deposit; vegetables should be easily cooked in it.' Shallow well-water is always to be examined with suspicion. The water of some rivers at certain seasons is thick and muddy; in some, it is always so. To examine it without the aid of chemical tests, fill a long tumbler or other glass vessel with it. If the water has been drawn in a bucket or other vessel, shake it up and stir it well before pouring it into the tumbler or glass cylinder; let it stand for a day, or as many hours as possible; draw off the water without disturbing the sediment, which should then be carefully examined through the microscope of your telescope. Vegetable decompositions and iron are the chief substances that give colour to water. When water is very bad it should be boiled before drinking; after boiling it should be placed in shallow vessels, and poured from a height from one into another.

RATIONS. *Provisions.*—All officers and other soldiers when in the field draw the following rations daily: 1½ lb. of bread or 1 lb. of biscuit, fresh or salt meat 1 lb., coffee ⅓ oz., tea ⅙ oz., sugar 2 oz., salt ½ oz., pepper $\frac{1}{36}$ oz. When troops are marching or doing hard work, half a pound should be added to the meat ration.

It is to be hoped that the issue of tea and coffee the same day may be discontinued in future, as was done during the recent autumn manœuvres, when ¾ oz. of tea was allowed daily, instead of the quantities of tea and coffee specified above. During the manœuvres 1¼ lb. of fresh bread was the daily allowance, but ¼ lb. cheese was issued at the discretion of general officers commanding divisions when it was considered the men required extra rations.

All non-commissioned officers and privates are stopped 6*d.* a day for these rations.

Officers who draw rations of provisions and groceries, either for themselves or for their civilian servants, are required to pay for them at the rate of 1*s.* a ration, the actual payment being made by the regimental paymaster in the case of regimental officers, and in other cases by the officers themselves. On the breaking up of a camp, the commissary of the brigade to which the officers were attached will forward to the control paymaster of the garrison to which the officers belong a statement of the number of the rations supplied, and the paymaster in question will secure payment. When the encampment lasts for more than a month, payment for the rations will be made monthly at the camp to the Control Dept. Rations must be drawn as a whole, and the whole ration paid for.

Forage.—The ration of forage is as follows: 14 lbs. oats, 8 lbs. hay. Large horses employed for heavy draught work are allowed, on the certificate of the C.O. of the corps, 2 lbs. of oats daily, when actually requisite, in addition to the ordinary ration. M.O.s of the general or departmental staff, infantry of the line, artillery, and engineers, invariably draw forage in kind from the Control Dept.; and in no case, without special authority, is the commuted allowance granted.

Fuel.—The ration of fuel is as follows: 3 lbs. wood or coal; 2 lbs. small firewood, or 4 small turf sods, for kindling fires when coal is issued, to every 36 lbs. coal. Each soldier under the rank of sergeant is entitled to one ration daily. Sergts. are entitled to 1½ ration each if they mess together, but if they cook with the rank and file they will receive one ration only. This is only intended for cooking. The nature of the climate, and the nature of the huts or temporary barracks, must determine the amount required for heating purposes. As a rule, whilst an army is campaigning in a country where wood is plentiful, no issues of fuel for cooking will be made by the Control Dept.; the troops will provide themselves with wood every day when they halt, parties, each under an officer, being sent to cut it. Servants, not being soldiers, for whom provisions are drawn are permitted to draw one ration of fuel each daily, free of cost. Regimental officers are allowed fuel not exceeding the following daily issues:—C.O. of a regiment or battalion, 8 rations; field officer, paymaster, and surgeon, 4 *rations; adjutant* and other staff officers, 2 rations; the officers of each troop or company—for their own use and for the supply of the sutler, 8 rations for each troop or company. The foregoing scales fix in each case the maximum issue allowed, and the full quantities are not to be issued if not required. The sick in hospital and hospital servants are each allowed two rations daily, if required, for which the certificate of the P.M.O. must be given. Coal is only issued when wood cannot be procured, or when it is more economical to provide coal.

Light.—The ration of light is as follows: ⅔ gill oil for each lantern, 1 dm. wick for 8 gills of oil. Four lanterns are allowed for each regiment of cavalry and two for each regiment of infantry. Lanterns for each battery of artillery, and other mounted corps, are allowed in the same proportion as for cavalry. Oil for hospital lamps is drawn on the certificate of a medical officer of its absolute necessity.

Straw.—Straw is not issued at our manœuvres either for horses or for men's bedding. When allowed in ordinary camps for the latter purpose, it is issued at the rate of 72 lbs. per 5 men, or 216 lbs. per bell tent, to be refreshed with half the quantity at the end of succeeding 8 days, until the 24th day, when an entirely fresh issue is to be made. In wet weather it must be changed more frequently. See page 27. C.O.s will, on the day preceding that on which supplies will be required by their corps on going into camp, transmit to the commissary of the brigade to which they will belong, ration returns on W. O. Form 789. (See copy of form in Appendix.) During the encampment, returns on the same form will be sent to the commissary regularly every day preceding the morning of issue. On arrival at camping ground, quartermasters of regiments will at once place themselves in communication with the brigade commissaries, and ascertain where they are to draw their supplies. The names of all officers drawing rations for themselves, or civil servants, must be detailed on the ration returns.

Whenever it is practicable to do so, rations should be issued direct to the soldier in quantities to last two or three days. It teaches him to economise his food, so that when it becomes necessary, as it frequently does in war, to give him several days' supply at a time, it may not be a new thing for him to exercise discretion and care in using them properly.

C.O.s in our army do the reverse invariably. When giving several days' rations for their men they keep it in bulk, if possible, and issue it in small quantities, telling you that if they gave it out to their men at once, they would eat it all in one day, or throw away what they could not eat after their first meal. This is the old story of treating our men as foolish children. Let us in future endeavour to teach them to reflect, and act as they would in civil life regarding their food.

Camp Equipment **includes all articles that are not personal equipment**

required by troops for themselves and horses in the field, except food. It is distributed by companies or troops, and captains are responsible for it. All requisitions for it are made direct to the controller by the C.O.s of corps upon W.O. Form 1182, given in Appendix.

The following is the authorized scale of camp equipment for flying columns, autumnal manœuvres, and for field service :—

At the time of making the first issue, W.O. Book 422 will be given to the Officer drawing the stores, by the Commissary making the supply, and in this book the C.O. will record in the upper part of the account all articles received by him, and at the foot those returned by the Corps. At the close of this service the C.O. will balance the account, and return it, with the vouchers in support of it, and the whole of the stores remaining on hand, to the Commissary at the Depôt to which the stores are returned. Should any question arise, they will be decided by the Controller after communication with the C.O.

PROPORTIONS OF CAMP EQUIPAGE.

Articles.		Cavalry.	Infantry.
Axes, helved	felling, 4½ lbs.	5 per regiment	16 per regiment.
	hand	29 „	66 „
	pick, 5 lbs. or 6½ lbs.	13 „	60 „
Bags, nose		Equipment	1 per horse of M.O.
Bars, crow	4½ feet	2 per regiment	2 per regiment.
	5½ „	2 „	2 „
Blankets	grey, field service	1 per N.C. officer and man.	1 per N.C. Officer and man.
	horse	*1 per troop horse, public property.*	
Buckets, leather		2 per tent	1 per tent.
Covers, horse, waterproof		*1 to every 2 sets of saddlery or double set of harness.*	1 to each double set of harness.
Harness	pads	*1 per horse blanket.*	
	surcingles	1 „ „	
Hooks	bill	29 „	66 per regiment.
	reaping	1 per 8 N.C. officers and men.	
Kettles, camp, Flanders „ „ or Torrens*		2 for Staff Sergeants. 1 for 8 N.C. officers and men, or 1* for 5 N.C. officers and men.	2 for Staff Sergeants or 3.* 1 for 8 N.C. officers and men, or 1* for 5 N.C. officers and men.
Lanterns		4 per regiment.	

---

* If of *Torrens pattern*, Torrens pattern to be supplied for Infantry and Cavalry.

C

PROPORTIONS OF CAMP EQUIPAGE.

Articles.		Cavalry.	Infantry.
Latrine screens		1 *per regiment or battery.*	1 per regiment.
Nets, forage . . . . . pairs		1 *per horse*	1 per horse of M.O.
Picketing implements	cords, forage, or heel rope	*Equipment*	1* „ „
	pegs, wood	„	1* „ „
	posts, picket, 2¼ feet	6 per rope	6 per rope.
	ropes, picket, white, 16 yards.†	1 per 9 horses	1 per 9 horses.
	shackles, leather	Equipment	1* per horse of M.O.
	mallets	„	2* per regiment.
	mauls, picket	2 per troop	1 „
Implements, butchers'	blocks, chopping‡	1 *per regiment or battery.*	1 „
	choppers, meat	1 „	1 „
	cleavers, butchers'	1 „	1 „
	knives, butchers'	1 „	1 „
	machines, weighing 28 lbs.	1 „	1 „
	saws, iron-back	1 „	1 „
	steel, butchers'	1 „	1 „
	weights (14 lbs. to ¼ oz.) sets.	1 „	1 „
Sacks, corn		*Equipment*	1* per horse of M.O.
Sheets, waterproof		8 *per tent*	8 per tent.
Shovels		13 per regiment	100 per regiment.
Spades		13 „	10 „

---

* Carried on horses.

† If tarred ropes of 25 yards are supplied the proportion will be one rope for 15 horses.

N.B.—Batteries of horse and field artillery have all the above articles always in *possession as "Equipment,"* except those printed under the cavalry column in italics, which *are issued from store in the usual* manner upon the same scale as for cavalry.

PROPORTIONS OF CAMP EQUIPAGE.

Articles.	Cavalry.	Infantry.
* Tents (circular), and tent appurtenances	1 to C.O.	1 for C.O.
	1 to Major	1 for 2 Majors.
	1 per troop for officers	1 for Surgeon and Asst. Surgeon.
	1 to Paymaster and Q.M.	1 for Paymaster and Q.M.
	1 to Surgeon and Asst. Surgeon.	1 for Adjt. and Office.
	1 for Adjt. and Vety. Surgeon.	1 per Company for officers.
	1 to Staff Sergeants	4 for guards.
	1 to 12 for all other N.C. officers and men†	1 for Staff Sergeants.
	4 for guards	1‡ per 15 N.C. officers and men, exclusive of Staff Sergeants.
	2 for officers' servants	1 for Servants of M.O.
	1 Latrine, officers'	1 Latrine, officers'.

Horses attached to Infantry, *if hired*, are entitled to 1 horse brush, 1 curry comb, and 1 sponge, for every two horses, and a nose bag for each horse, as well as a blanket, pad, and surcingle, and a pair of nets. If belonging to A.S.C. or other mounted Services the articles would, as well as their equipments, accompany the horses.

Any articles lost otherwise than by unavoidable accident, or damaged beyond what may be considered as fair wear and tear, will be charged against the troops.

All articles may be purchased by officers when in the field, provided the state of the store admits of the sale.

It is the writer's conviction that tents cannot possibly be carried by an army when engaged in active operations before an enemy. The Prussians during their late wars had none, neither had our army in the Peninsula.

---

* Field Batteries have all their tents in possession as 'Equipment.' Batteries of Horse Artillery when sent into camp are allowed tents as follows.—1 for O.C., 2 for the other Officers, 12 for N.C.O.s and men, 1 for guard; making a total of 16, of which 10 are always in possession as 'Equipment.' One officer's Latrine is allowed for each Battery.

† One to 8 non-commissioned officers and men of Life or Horse Guards, and Yeomanry.

‡ *One to 12* non-commissioned officers and men of Militia, and Volunteers.

As the lines of operation will generally be along railways, tents can easily be brought up for use when the army is stationary for any length of time as at a siege. At other times the men must bivouac and be billeted in villages.

The Circular Tent is the one used in our army. It is 10 ft. high, diam. at base is 12·5 ft., the ropes extend about 18 in. all round: its apex forms an angle of 70°; it weighs 74 lbs. complete with pole when dry; it is made of canvas. (All canvas tents increase in weight by from 30 to 40 per cent. when completely wet.) It consists of 1 valise, 1 pole (in 2 pieces), and a bag containing 42 pins and 2 mallets.

The Tente d'Abri consists of 2 sheets, 2 poles, and 7 pins, and weighs about 11 lbs. when dry; it is issued at the rate of 1 to every 3 men, when supplied.

The Hospital Marquee complete weighs, when dry, 512 lbs., and consists of 1 valise, 1 bundle of poles, 1 bag containing 4 large and 180 small pins, and 2 mallets, and 1 bottom. It is intended for the accommodation of 18 sick, and contains 3·336 cubic feet of air.

NOTE.—*A blanket, old pattern, weighs* 3 *lbs.* 12 *oz.; new pattern,* 4 *lbs.* 10 *oz.* (7½ *ft.* × 5 *ft. in size.*) *The Flanders camp kettle* 8¼ *lbs.* (*holds* 12 *quarts,* 12 *in in breadth at top and* 11 *in. at bottom, depth* 12 *in., and cooks for* 8 *men*)*; the Torrens kettle weighs* 3½ *lbs.* (*holds* 6 *quarts, and cooks for* 5 *men*). *Reaping hook,* 10 *oz.; sickle,* 14 *oz.; horse blankets,* 6½ *lbs.; billhook,* 1 *lb.* 12 *oz.*

AMMUNITION.—The controller of an army in the field is responsible to the Commander of the Forces for the ammunition of that army.

As a general rule, subject to such modifications as the nature of the service may require, the proportion and distribution of ammunition in the field is as shown below.

—		Rounds of Ammunition for Field Guns per Gun.	Rounds of S.A.A. per Man.			
			Infantry.		Cavalry.	Artillery, Engineers, and A.S.C.
In possession of the troops		122	70	100	20	20
Regimental reserve		..	30		..	..
Field reserve with the artillery	1st reserve	90	40	80	10	10
	2nd reserve	40	40		..	..
Control reserve field arsenal	3rd reserve	100	50		20	25
		352	230		50	55
Control reserves, grand depôt and intermediate reserves		248	770		450	195
Total		600	1,000		500	250

The regimental reserve is carried in carts permanently attached to regiments.

One S.A.A. waggon to be attached to the R.H.A. will be allowed to each brigade of cavalry, and one cart with harness to every regiment, battalion, or corps of infantry or auxiliary forces. On service, the number of carts will be increased.

Snider Ammunition is packed in boxes 7 in. wide, 8·5 in. deep, 16 in. long, containing 500 rounds each, weighing 64 lbs. There is a new pattern box, holding 560 rounds, 21·8 in. long, 7 in. wide, and 8·6 in. deep; it weighs, when empty, 12 lbs. 1·5 oz., and when full 72 lbs. 8 oz. Sixteen of these new pattern boxes fit into the new S.A.A. cart, and 32 of them into the new pattern S.A.A. waggon.

Henry-Martini Ammunition is packed in boxes measuring 21·75 in. × 8·5 in. × 7 in., weighing, when empty, 12 lbs. 1·5 oz., and when full 79 lbs. 8 oz. It holds 600 rounds; a S.A.A. waggon carries 32 of these boxes (20 in body and 12 in limber); a S.A.A. cart carries 16 of these boxes, in 8 partitions of 2 each.

CLOTHING AND NECESSARIES.—All correspondence connected therewith goes, during peace, direct to the Director of Clothing in London; but, in the field, all such must be obtained by requisitions upon the Control Department.

SELECTING A SITE FOR ENCAMPMENTS.—In deciding upon the site for any camp, whether large or small, for occupation for a night or for a lengthened time, two great considerations enter into the question, viz., the *Military* and the *Sanitary*. When they clash—as they may frequently—the point must be settled according to their relative importance in each particular case. If a great battle is impending, everything must give way to the strategical or tactical exigencies of the moment, and troops may have to bivouac for a night or two in positions that may be objectionable in a purely sanitary point of view. It may, however, be accepted as a general rule that, when beyond two days' march of the enemy, sanitary considerations are to be considered first.

The military considerations in selecting the site for a passing encampment are abundance of wood and good water, and other supplies, and that it should be provided with facilities for internal communication, and that there should be easy access to the neighbouring roads. Villages, defiles, rivers and all other obstacles near the site selected should be in rear, so that they should not interfere with the next day's march; for it is important to have plenty of clear space to start on, as there is more likely to be confusion then than at any other time.

Sanitary considerations in selecting Sites for Encampments.

There are many places which at certain seasons of the year may with safety be occupied for a few days, where at other times it would be madness to encamp.

There are rules which must not, under any circumstances, be neglected if the camp is to be permanent, and indeed the extent to which they can be disregarded at any time is to be measured by the exigencies of the moment. If obliged to encamp in a position where you expect to accept battle in a week, or a month, pitch on ground in advance of the position you must occupy when the enemy is in your presence; you then secure a fresh place for your men, and leave him a dirty one when he moves to attack you.

Avoid encamping or bivouacking in grave-yards. Get as far to windward of them as possible.

Avoid encamping on ground that has been encamped on before, and if obliged to do so, go to windward of the old site. Avoid all rivers with marshy banks, and marshes of every description. If obliged to camp with a small force for a day or two near a marsh, if possible place yourself so as to have a hill, or even some rising ground, or woods, between you and it.

The water should be well tested, and the inhabitants questioned about it.

A grass country with a sandy or gravelly subsoil is the best; land with a clayey subsoil is damp; all brushwood should be avoided. Forests lately cut down are dangerous, particularly in hot or tropical countries. In temperate climates, if the country is well settled, and the people have a robust appearance, it is the best guarantee of the healthiness of the place.

There should be good natural drainage; ground sloping to the east or south is to be preferred.

The banks of running rivers are good, provided their edges are not marshy.

Sites on granite, metamorphic, clay-slate, and trap rocks are good. When, however, these rocks have become disintegrated, they are supposed to be unhealthy.

Limestone and magnesian limestone are also healthy when there are not marshes, which are common in these formations; water there is good, but hard.

Chalk is good when unmixed with clay; water is pleasant and good. When the chalk is so mixed with marl as to become impermeable, it is damp, and likely to prove unhealthy. The permeable sandstones are very healthy.

INTERNAL ARRANGEMENT OF CAMPS.—The site having been chosen carefully, it is taken for granted that the natural drainage is good. Although the camp had only been pitched with the intention of remaining there a day, circumstances may convert it into a residence for months; therefore from the moment the tents are up, every exertion should be made to carry out all the works that are required in standing camps. Those that should be attended to by each individual regiment are as follows, each being placed in this list according to its relative importance:—

1. Tents to be neatly pitched according to order,

2. Cooking places marked out, and a kitchen constructed for each company.
3. Latrines dug.
4. A trench of 4 in. deep (the width of the spade) dug round the outside of each tent.
5. If the regiment is alone, make a watering place; if encamped as part of a division, this should be attended to by the A.Q.M.G.
6. The natural drainage so improved that all water flowing from the tents into the small drains round them should be led off by deeper drains into the nearest ravine or rivulet.
7. Make racks for arms in front of each company's tents.
8. Make paths with stones in front of each row of tents, &c.
9. Erect sentry boxes or shades.

FIRST.—In deciding upon the form of encampment, the following principles should be borne in mind:—

a. As a general rule, the frontage of cavalry and infantry encampments should correspond with the space covered by the regiments when deployed into line (allowance being made for intervals between them), and the lines of tents should be on the prolongation of the squadrons or companies as they stand when in column.

b. That it should be formed to the reverse flank, when the line had broken into column.

c. Clear passages for guns and troops through the camp from front to rear should be provided for.

In marking out the front of the camp for a division, it cannot be expected that every corps should be exactly in alignment one with another, as the configuration of the ground must greatly influence it. When, therefore, it is necessary that the front of one battalion should form a salient angle with that of another, care must be taken to allow a sufficient interval between them, so that the regulated space between them shall be maintained all along the depth of both camps. When troops are encamped in two or three lines, from 200 to 500 yds. should be left clear between the rear of one line and the front of that behind it.

The space required for the encampment of a battalion of infantry on the war establishment is a frontage of 320 yds. and a depth of 266 yds. when full distances are allowed. This provides for a parade-ground of 80 yds. in depth, but when the ground is restricted this may be dispensed with, as also the space in rear of the baggage, so that a battalion may, when necessary, be easily encamped upon a depth of 150 yds. The frontage may under similar circumstances be reduced to 120 yds. by having only 15 yds. between the rows of tents instead of 40 yds., as shown in the sketch. The interval between battalions, or between a battalion and a regiment of cavalry, is 25 yds.; between artillery and the other arms the interval is 34 paces.

The space required for a regiment of cavalry on war establishment is a frontage of 284 yds. and a depth of 436 yds., when encamped as shown in sketch in column of squadrons, and providing a parade-ground of 80 yds. in depth. When space is an object, the front can easily be reduced to 140 yds. and the depth to 336 yds., dispensing with the parade-ground, and closing up the baggage nearer to the officers' tents. Horses when picketed require a width of 6 ft., so when the available depth is much less than 336 yds., a cavalry regiment on war establishment should encamp in column of troops.

The B.M.s having been pointed out by the A.Q.M.G. the line that is to be the front of their brigades, must make the necessary arrangements for any deviation from it which the nature of the ground may render essential, and will point out to the Q.M.s of corps the exact spots where their right and left is to rest.

The regiments being formed in column with an interval of 6 paces between the reverse flank of the strongest company or squadron and the front of the camp as marked out by the regimental Q.M.s, the tents of each company or squadron will be pitched in line with them, as they stand in column.

In the infantry arms will then be piled, and packs taken off (when at a distance from the enemy accoutrements also), and hung upon the arms. In the cavalry, as soon as the horse lines are marked out, the squadrons will file off to them, the men dismount, picket their horses, loosen girths, and remove bridles, placing them with their arms in rear of their respective horses. In the artillery the battery being formed in column of subdivisions with the waggons in rear of the guns, and at such a distance from them as will allow plenty of room for the horses at the picket ropes, the horse ropes will be stretched between the gun limbers and the waggons, the horses will be unhooked and filed off to their respective places. Kickers and vicious horses should be picketed at some distance from others, each with a heel rope.

The band, buglers, pioneers, &c., having joined their troops or companies, each squadron or company is to be told off into parties of the number intended to be in each tent. The regulation number for the auxiliary forces is 12, so each party should consist of 1 N.C. officer and 11 privates, care being taken that the colour-sergeant is in the rear tent. In the cavalry, 1 troop sergeant-major should be in the front tent, and the other in the rear one of each squadron. Of this party the N.C. officer and 6 privates are to be told off to pitch the tent, and are numbered off by the N.C. officer from 1 to 6, their respective duties being as follows: No. 1 front-rank poleman, No. 2 rear-rank poleman, Nos. 3 and 4 pegmen, Nos. 5 and 6 packers and unpackers of the tent. The N.C. officer of the party to superintend, and see that the pole is placed on the spot marked off for it, that it is upright, that the door is properly placed, that the cords are stretched in a line with the seams of the tent, that the slides are made fast at equal distances between the tent and the pegs, and also to enforce silence.

The following parties should then be told off and paraded by the adjutant:—

Cooking party.—Two men per company, under the sergeant cook.

Latrine party.—All the pioneers who carry pickaxes and shovels, and one man per company.

Water party.—One non-commissioned officer and two men per company, under a sergeant.

Ration party.—A non-commissioned officer and two men per company, or more if the company is strong, under the quartermaster sergeant.

Wood party.—Two men, or more if requisite, and a non-commissioned officer per company.

The remainder will sit down close to the piles of arms.

The quarter- and rear-guards of every regiment will be mounted with the least possible delay.

As there is sure to be a long interval before the arrival of the baggage, the tent parties should mark off the exact position for each tent, indicating where the pole is to be with a stone or other mark.

The senior major will dress the polemen of the front row of tents from the right so that they shall stand exactly on the line marked out by the Q.M. as the front of the camp, and the captain of each company will from them dress the polemen of his squads, who whilst being so dressed will stand at attention facing the piles of arms, at the number of paces one behind the other that the tents are to be, one from the other (not less than 10 paces if possible).

The cooking parties will at once set to work to construct their kitchens under the superintendence of the sergeant cook.

The corporal of pioneers will at once begin the latrines, it being essential that the ground should not be fouled.

The ration party, under the quartermaster-sergeant, will go to the depôt and receive the rations.

The wood party will, if no fuel is issued, seek for, and bring it to the kitchen.

An officer from each corps should be on the look-out for the regimental waggons, and as soon as the convoy of waggons makes its appearance, conduct them to the rear of the camping ground. Care should be taken that they do not drive over the space within the colours, but pass through the intervals. They should be parked with the tail-boards towards the camp, and they should not halt near any ground where tents are to be pitched, as horses *stale when halted* and pollute the ground.

On the waggons being halted, the whole of the tent party, with the exception of one poleman per tent (who will stand marking with his heels where the pole is to rest), will march off, under a subaltern from each company, unpack the waggon, and bring up the tents.

The tents having been brought up, the rear-rank polemen, having in the meantime joined the two pieces of the pole together, hand them to their front-rank men. The pegmen at the same time distribute the pegs where they will be at hand when required. Nos. 5 and 6 have in the meantime unpacked the tent and stretched it out flat on the ground, with the tent door hooked across and uppermost, when it will form a triangle, the base of which should be one pace away from the feet of No. 1, with the apex pointing towards the companies' tents in rear. The polemen then insert the pole, so that one end is fitted into the cap, the other end being placed between the heels of No. 1, the two pegmen get hold of the two front-angled ropes, the two packers of the two rear-angle ropes (which are marked with red, to distinguish them from the others). Upon the word of command 'raise tents,' the poles to be at once elevated by Nos. 1 and 2, the former getting inside the tent and keeping the pole in a vertical position by putting the end of it between his feet; the 4 angle ropes to be at once pegged down, No. 2 taking care that the door is square to the front, that is, facing the same way that the men did when they stood in column, and that it is well closed; the pegmen will then peg down the other ropes, working gradually round from their left to their right, under the superintendence of the N.C. officer, who will take charge of tent, bag, and mallets. The officers' tents should then be pitched in a similar manner.

As soon as the tent is pitched, 2 men from each squad will make a trench 4 in. deep and the spade's breadth round the tent immediately outside the walls, so that both the trench and the sod or earth taken from it shall be within the line of pegs. The knapsacks or valises, as the case may be, will then be removed into the tents, being placed where the head of the owner of each will rest when sleeping. If *tentes d'abri* are used instead of bell-tents, the same plan of camp is to be adhered to. Although it is more convenient to have the tent doors facing the same way that the men do when standing in column, yet it is very easy to change them if the prevailing winds or the rays of a hot sun renders that position objectionable.

In striking tents, the front-rank man gets inside the tent, No. 2 closes the door, and keeps it closed until the tent is struck; the other 4 men pull out all the pegs except those of the 4 angles. The pegs to be collected and put in their bag, the remaining 4 pegs are to be drawn, the men holding on to the ropes. At the word of command 'strike tents,' they are to be lowered backwards, pulled out flat and carefully folded, the ropes being rolled up round the slides, and then placed so that they do not appear when the tent is folded up.

The encampments for cavalry, and infantry, and artillery, after the most approved manner, are shown in the diagrams. The plan of ropes stretched from gun to waggon, or from one cart to another, is the best method for securing horses in the field.

The accompanying plans do not arrange for a hospital establishment, as it is taken for granted that the regimental hospital system will not be maintained in the next big war we have. If, however, the cumbersome regimental system is still to be continued, the hospital marquee and doctor's tent should be pitched near the rear guard. As, in future, operations will generally be along lines of railway, there is no reason why the bell-tents should not be always at hand for use during any prolonged halt, or during a continuance of inclement weather.

The attempts made at ventilation do well when not more than one or two live in the tent; but when the number is beyond a dozen, the tiny openings for fresh air are of no practical use. The only plan is to insist on the doors being kept open when it does not rain. When it is remembered that each man requires from 3 to 4 cubic feet of air per minute, it is unnecessary to dwell upon this point.

The largest possible space should be covered by each corps when no military reason forbids such expansion.

The practice of closing up the tents of every two companies together should be discontinued. The distance between the tents of companies or squadrons depends upon the number of files in each, as the distance between them as they stand in column is regulated thereby.

The length of the horse-lines of each squadron will be according to the number of horses in it, 6 feet being allowed for each horse. If space is limited, a cavalry regiment can encamp by troops instead of by squadrons, the regiment being formed up in open column of troops; the tents will be pitched as for infantry, the horse-lines being between the rows of tents.

In pitching the tents, disturb the ground inside and around as little as possible. Do not allow absurd notions of order and regularity to cause tents to be pitched in hollows which are frequently met with in the best sites, when by moving the tent perhaps a few feet one way or another, a good position for it might be found.

In camps of position where tents and not huts are used, it is advisable to supply planking for the men to lie on, these planks to be removed and aired every fine day. If boards cannot be had, use any sort of tarpaulin or waterproof sheet that can be obtained.

If straw is plentiful, issue enough to make good thick mats for the men to lie on; they are easily made, and most comfortable; they should be hung up to dry every day. They should be 3 in. or 4 in. thick, 6 ft. long, and 2 ft. 3 in. wide at top, curved outwards to fit the tent, and tapering gradually down to a point, Every morning, except when it rains, have the sides of tents rolled up all round, and in fine weather strike tents frequently; it is good practice

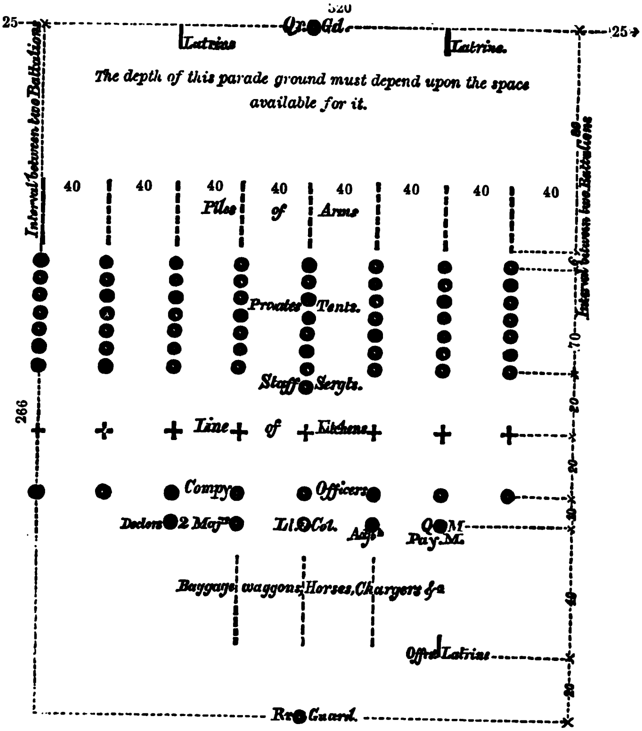

Fig. 1.—Camp of a Battalion of Infantry on war establishment at full intervals, Measurements given in yards.

for the men; they should regularly pack them up as if for the march. This is also advisable as a sanitary measure, for the ground where the tent usually stands can be well dried by the sun.

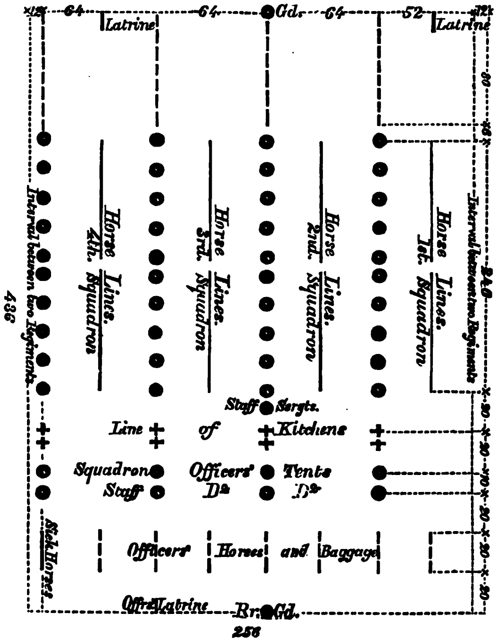
12
64
Latrine
64
Gd.
64
52
12
Latrine
80
16
Interval between two Regiments
240
Horse Lines. 4th. Squadron
Horse Lines. 3rd. Squadron
Horse Lines. 2nd. Squadron
Horse Lines. 1st. Squadron
Interval between two Regiments
436
Staff Sergts.
Line of Kitchens
Squadron Officers' Tents
Staff Do Do
Officers' Horses and Baggage
Sick Horses
Offrs. Latrine
Br. Gd.
256
20
20
10
20
20
20
20

Fig. 2.—Camp of a Regiment of Cavalry on war establishment. Measurements given in yards.

Do not permit grass or green leaves to be used for beds in tents, but serve out straw when it is possible, to be used as already stated.

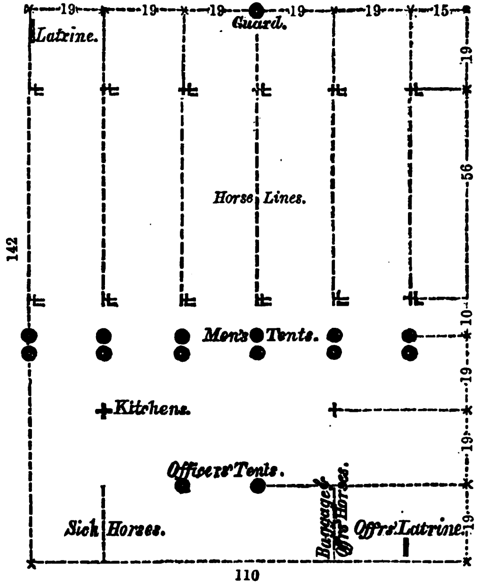

Fig. 3.—Camp of a Battery of Artillery on war establishment. Measurements given in yards.

During the Crimean war numbers of officers dug out the interior of their *tents, leaving a small pillar of* earth under the tent-pole, of about a foot at top, and 18 in. at bottom. When it was possible to obtain a good stout spar of the desired length, the pole in two pieces was discarded, and the pillar cut away, placing the foot of the spar (the new pole) on the bottom of the excavation. A ledge of about 9 in. all round the inside of the tent was also left, which served as a shelf, so that the excavation was only about 11 ft. in diameter; the interior superficial space was consequently very much reduced, although the cubic contents were greatly increased, as also the general comfort. There is an art in pitching a tent, which camp life soon imparts to soldiers. They should, however, go through an annual course of instruction in tent-pitching, when the matter should be explained to them. In sandy places it is difficult to keep tents standing in a high wind, as the pegs draw. Large stones, pack-saddles, &c., should be used to fasten the ropes to; bushes buried in the sand, the branches pointing towards the tent, with one left sticking up over the sand to fasten the rope to, form the most secure means of keeping tents erect, as they form a species of anchor; a flat stone or piece of wood should also be placed under the tent-pole, to prevent it from sinking into the ground.

We have now in our military stores a bad imitation of the French *tente d'abri*, which fulfils few of the purposes for which they were originally designed; so much so that bell-tents for a force weigh about the same as our shelter tents for a similar number. They are heavy, and the buttons and holes are badly placed.

Previous to retiring for the night, all the tent-ropes should be slacked off a little, as the rain or dew will tighten them enough to draw the pegs, and strain, if not tear, the canvas. At night and during wet weather all the arms should be replaced in the tents, and fastened with a string round the tent-poles.

2nd. COOKING PLACES.—Each company should have its own kitchen in rear of, and in line with its own row of tents. The simplest kitchen consists of a trench dug in the direction that the wind is blowing, of such width that the kettle, when placed on it, should not rest above an inch on each side; when Flanders kettles are used, the width should be 9 in.; its depth should be 12 in. at the end from which the wind is blowing, and continue that depth for 2 ft., decreasing then gradually to 3 in. at the opposite end, where a space must be left equal to the breadth of the trench, to serve as a chimney. For a company on war strength, two such trenches will be required, each 10 ft. long. The fire is lit at the end where the trench is deep; it should not extend beyond 2 ft. up the trench. The kettles are placed touching one another along this trench; dry sods should be used to stop up the chinks made by the roundness of the kettles, so that the space under them may form a flue. It is advisable to pile up sods, or, with *stones and earth*, to erect a chimney of at least 1 ft. in height at the end away from the fire. All grass round the fireplaces should be cut to prevent accidents from fire.

If the force halts for more than one day, these kitchens are susceptible of great improvement; the chimney can be made of mud or wattle and daub, and the draught may be increased by using short pieces of hoop-iron, as bars stretched across the trench to support a filling-in of clay round each kettle, or, in other words, to make a regular place for each kettle, into which it will fit exactly, so that its position may be frequently changed, to prevent the contents of one being cooked before the other. As the day following the wind may change to an exactly opposite direction, a similar trench must be dug in continuation of the former one, the same chimney being used. In this manner the same chimney will serve for trenches cut to suit the wind blowing from all four quarters. The openings from these trenches into the chimney must all be closed with a sod, except the one to be used when the fire is lit. In some places, where bricks or stones suitable to the purpose are to be had, it is better to construct these kitchens on the ground instead of below the surface.

In well-wooded countries, like America, two logs rolled together in the direction of the wind, the fire being kindled between them, make a good kitchen. In such places fuel is no object, so the construction of chimneys can be dispensed with, and the kettles hung from a stick resting at each end on a forked upright.

Firewood should be cut into lengths of 1 ft. and about 2 in. square. When nothing but gorse or brushwood is to be had, the trench must be deepened where the fire is lit. Damp or very sappy wood should be avoided. Bones can be used when other fuel is not to be had.

Field Ovens.—The simplest method of making them is as follows. Take any barrel (the more iron hoops on it the better), the head being out; lay it on its side, having scraped away the ground a little in the centre to make a bed for it; or if there is a bank near, excavate a place for it, taking care that the end of the barrel does not reach within 6 in. of the edge of the bank. Cover it over with a coating of about 6 or 8 in. of wet earth or thick mud, except at the open end, which is to be the mouth of the oven. Pile up some sand or earth to a thickness of about 6 in. over the mud, arranging for an opening 3 in. in diameter being left as a flue (to increase the draught) to lead from the upper side of the barrel, at the far end, through the mud and earth. This flue is only left open when the fire for heating is burning; when the bread is put in it should be covered over. Form an even surface of well-kneaded mud at the bottom within the barrel, to form a flooring to place the bread on. Light a fire within the barrel, and keep it up until the staves are burnt. You will then have a good oven of tough burnt clay, tied together by the iron barrel-hoops. When required for use heat it as if it was an ordinary oven; when the ashes are drawn out and the bread put in, close the mouth with some boards or a piece of tin or iron from a case in which preserved potatoes or other perishable stores have been issued. These ovens were frequently used during the Red River expedition, and answered admirably.

3rd. LATRINES.—As soon as the place has been marked out for them by the regimental quartermasters, they should be commenced by fatigue parties. Those constructed at first should be 2 ft. wide at top and 1 ft. at bottom, 2 ft. deep, and about 12 paces long. The earth, as it is dug out, should be thrown so as to form a bank to the rear and sides, sods and any large stones on the spot being used to revet the inner faces of the bank.

If the force halts for more than one day, latrines on a larger scale must be constructed: they should be 6 ft. deep, and 1 ft. wider at top and bottom than the smaller ones. If possible, a rail or post of some sort should be erected along the edge for the men to sit on: it should be 18 in. above the ground, and can be supported by forked posts at the ends. If trees or brush are in the neighbourhood, it can be enclosed by a screen about 4 ft. high, and, if time permits, roofed in also. Twice a day, about 10 A.M. and 6 P.M., the bottom of each pit should be covered with a 3 in. layer of dry earth, not sand; the wood ashes from the cooking-places should be spread about in the vicinity, particularly where the men's feet rest within the enclosure. If lime is to be had, it should be used in large quantities. C.O.s should hold their quartermaster strictly responsible that these duties are carried out efficiently. The work will generally be done by defaulters; and it is advisable that the same sergeant should always have charge of them, so that he may be conversant with these duties, taking his orders daily from the quartermaster. When these latrines become nearly full, they should be carefully filled in with earth well trodden down, but having a small mound over the spot to mark it.

The health and comfort of every one in camp depends very much upon the manner in which these duties are conducted.

4th. DRAINS ROUND THE TENTS; they have been described already.

5th. WATERING PLACES.—If there is, or is likely to be, any scarcity of water, sentries must be posted over the wells or streams from which it is drawn, and it should be laid down as a rule that the captain and subaltern of the day on duty in each battalion must visit, during their tour of duty, the sources from which water is supplied to their men, to see that no irregularities take place there. Immediately that troops reach the ground where they are to encamp or bivouac, water guards must be told off and orders issued by the A.Q.M.G. for their guidance: in many places such guards should be commanded by officers.

If the supply is from a running stream, the greatest care must be exercised to prevent men from washing clothes, or bathing in it above the point where the drinking water is to be drawn.

Two points should at once be marked off: above the first, water for drinking and cooking to be drawn; between the two, horses and cattle to be watered; and below the second, all washing and bathing to be carried on. This is an arrangement of the first importance, both for health and comfort.

When positions are to be occupied for any length of time, these regulations are of still greater moment. In many instances the water supply is from springs, which require nice care to make them answer all purposes. Before Sebastopol our water supply was from springs and a few wells; before we left the Crimea some of our watering places were models of their kind. Small reservoirs were made to catch and hold the supply that ran off during the night, so that every gallon of water that the spring gave was made available: from these reservoirs all the water for drinking and cooking was drawn, and the overflow passed off into a series of half barrels placed close one beside the other, with a little tin gutter connecting each, so that the overflow from each barrel filled the one next below it, the fall being just sufficient to allow for this. Say you have 25 of these half barrels well built up with loose stones below, fifty horses can water there at a time, five-and-twenty horses at each side of the row of barrels. Horses, mules, and bullocks drink about 1½ gallons at a time, and take about three minutes each in doing so. The overflow of the lowest barrel is again collected in a reservoir for washing clothes, &c. An officer should invariably accompany all cavalry watering parties, and instructions should be given that each horse as soon as he has drunk should leave the water, and the party should fall in at a little distance clear of the next comers.

Such watering places must have at least one or two sentries always on duty by day and one by night, to see that the orders regarding them are strictly carried out. They should be visited every day by the majors of brigade, and by all the regular staff officers of the division, also by the field officer and provost sergeants. These barrels should be well charred inside; the more frequently the process is gone through the better. When the same watering places are used by one or more divisions, increased care is necessary, and mutual arrangements must be made on the subject by the generals concerned. One frequently meets with springs from which the supply is small and difficult to obtain. Dig these out a few feet, and insert a cask charred inside, perforated all round with holes (half-inch), and from it the water may be drawn easily. If animals are to be watered at very shallow streams, dams should be constructed to deepen them, as animals drink more rapidly when the water is about 4 or 5 in. deep.

FILTERS.—Two barrels, one inside the other, leaving a space of 4 or even

6 in. clear all round them, filled with sand, gravel, and charcoal, form an excellent filter. The inside one, without a bottom, rests on three stones placed in layers of sand, charcoal, and coarse gravel: the water flowing or being poured into the space between the two, and, having thus to force its way through these substances into the inner barrel, becomes purified. If the water is a small spring gushing up out of the earth, the two barrels may still be used, but the outer one must have the bottom well perforated with holes, and the inner one having the bottom in and pierced with holes round its sides near the top, through which the water, having risen from the bottom of the outer barrel (by the holes pierced there) through alternate layers of gravel, charcoal, sand, and moss, passes into it clear and pure.

In both these filters the water should be drawn off by means of a pipe running through the outer into the inner barrel. For these filters animal charcoal is the best. When, after a time, it ceases to act, it should be removed and well dried. It can then be used again to advantage. It is impossible to use too much of it. Marsh water is most injurious.

If the water supply is from wells, troughs must be provided for the animals to drink out of. These may be made by simply excavating the ground and roughly paving it with stones, or they may be made of wood or sheet iron if it can be procured.

Water Barrels.—For the conveyance of water when troops are stationary for any time the following simple contrivance is very useful: Bore a hole 2½ in. in diameter through the sides of a small barrel, and pass a stick of the same size, made of hard wood, through them, so that it may project about 6 in. on each side. This hole should be about 6 or 8 in.—according to the size of the barrel—from its open end. Two poles about 5 ft. long, having iron staples driven into them at the centre, are used for carrying it, by passing the projecting ends of the stick through the staples. When iron staples cannot be had, a lashing of small rope or stout cord may be substituted. Two men can thus easily carry a large quantity of water about a camp.

6th. **IMPROVEMENT OF DRAINAGE.**—The longer the camp remains standing the more complete ought the drains to be made. Wherever it is necessary to construct large ones, bridges must be made over them opposite the intervals between the regiments. Large flat stones can be used to make a covered-in drain, or barrels sunk, and covered over with small stones and clay well rammed in round them, answer well.

7th. **RACKS FOR ARMS.**—These should be made where the arms were piled as the regiment stood in open column. They are easily made by driving in two forked sticks, one at four paces from the front tent, the other at from 20 to 25 feet from it, according to the strength of the company. They should be about a couple of feet in the ground, and just so much above it that, when joined by a bar on top, it should be 3 ft. 6 in. high. In this bar nicks should be made at intervals of 4 in., those on one side being opposite the centre of the spaces between the nicks on the other side. If wood is plentiful, lay a rail on the ground at each side at 1 ft. 6 in. from the uprights, cutting nicks to correspond with those on the top bar. These rails should be picketed down to ensure them from slipping. Upon them the butts of the rifles are placed in the nicks, the muzzles resting in the nicks of the top bar. Stones neatly arranged will do well to rest the butts against where the wood is scarce. Forked sticks, 6 or 8 ft. long, connected by a top bar, should be placed in front of the tents, to hang wet clothes on, to dry blankets, &c. In countries where pine or spruce is to be had, young trees should be cut down, and the branches lopped off to within about 6 in. of the stem. About 6 ft. of such a tree, sunk near each tent door, forms the best possible rack to hang belts on.

8th. STONE PATHS.—These add greatly to the comfort of troops in camp, especially in wet weather, and lend an air of neatness and cleanliness to the place which is very desirable. Stones should be collected by defaulters. Any old wine cases, old barrels or bags, or a hurdle, will supply the place of hand-barrows. Paths should be made in front of each row of tents, in front of the camp, round each flank to the latrines, along the kitchens, &c.

Defaulters should be employed upon the conservancy of the camp. All refuse matter from the kitchens and dirt near the tents must be collected, and either burnt or buried in places to be especially marked off for that purpose.

9th. SENTRIES' BOXES OR SHADES should be constructed in all standing camps, to shelter sentries from sun and rain. They are easily constructed with hurdles; or if shade from the sun only is required, a few branches, interlaced and fastened to a pole driven into the ground, forms an umbrella-like protection that will answer the purpose well.

DAILY ROUTINE OF DUTIES IN CAMP.—The following should be detailed in orders:

1. The hour at which tattoo and *reveillé* will sound.
   The hour when orders will be issued daily.
   The hour at which rations and forage will be issued, and the places where the commissariat depôts are formed.
2. The position of headquarters.
   The position of the various staffofficers' tents.
   The position of the commanding officer royal artillery tent.
   The position of the commanding royal engineer's tent.
   The position of the controller's tent.
3. When and where letters are posted.
   When, and from whence, telegrams can be sent.

The officers for daily duty in camp, in addition to those in charge of guards, are to be a field officer per brigade, a captain and subaltern of the day per regiment, and an adjutant and quartermaster of the day per brigade.

In large camps the general of the day superintends the regularity and discipline of the camp in every particular; he visits the guards and the outposts (unless the latter have been placed under the command of some particular officer); he is to call out and inspect the inlying piquets as often, and at such times, as he thinks proper; he is to receive all reports from guards and outposts, and make immediate communication of any unusual occurrences to the general in command.

The field officer of the day has the general superintendence of the camp of the brigade; he is to be present at the mounting of all the brigade guards, which he is to visit by day and night. The inlying piquets are always to be considered under his command; he is to call them out, to inspect them, to order such patrols from them as he may judge necessary to ensure the regularity and order of the camp, and, in the event of their being ordered out of camp on any duty, he is to accompany them.

The captain of the day is to superintend the cleanliness and regularity of the camp of his own regiment; to attend the parading of all regimental guards; to visit them by day and night; and to report everything extraordinary to the commanding officer.

The subaltern of the day assists the captain in his various duties, and reports to him any irregularity which may come to his knowledge.

The brigade adjutant of the day is to assist the brigade major in the various details of it, and in the absence of the brigade-major is to receive and execute all orders; it may frequently be necessary for him likewise to attend for orders at headquarters.

It is the duty of the brigade quartermaster of the day to attend to the cleanliness of the camp, and take care that all broken glass and filth of every kind are removed, for which the quartermaster of each regiment is responsible as far as the camp of his regiment is concerned.

The officers on duty and those in waiting as next for duty, who are always to be named in orders, must never be absent from camp. No officer, without special permission from his general, must sleep out of his camp.

Camp followers and retainers of an army in the field are subject, equally with soldiers, to the provisions of the Mutiny Act and Articles of War.

Every encouragement is to be given to the people of the country occupied to supply the camp markets; and any soldier ill-using, molesting, or attempting to defraud them, or to exact anything for their free passage to and from the camp, is to be summarily punished in the most exemplary manner.

All foraging parties, and those employed in carrying water, or collecting fuel or straw, are to be attended by a non-commissioned officer from each troop or company. If a party exceeds twenty men, and is to march any considerable distance from camp, it is to be under the command of a subaltern officer.

The troops of every branch of the service are at all times to be kept in readiness to turn out at the shortest notice. It is expected that in half an hour from the time the troops receive the order to march, either by day or night, the army shall stand formed at the head of its encampment, with baggage packed, and the whole force prepared to move. This state of preparation is equally essential in cantonments and in camp; and in both the troops are to be accustomed to march without any previous notice.

Regiments encamped near villages are to send frequent patrols into them to apprehend any soldiers who may be there without passes, or who, having passes, may behave improperly.

Plundering and marauding are, and ever have been, considered highly disgraceful to soldiers, and unworthy of civilised troops. These offences are, therefore, at all times and in all places, to be promptly and rigorously repressed, and it is to be considered an imperative duty on the part of all officers and non-commissioned officers to interfere, and endeavour to the best of their ability to put a stop to any proceeding of the kind.

Bivouac.—Napoleon preferred the bivouac to tents for men, and there can be no doubt that it is more healthy in fine weather, particularly if operating in a wooded country where fires can be maintained easily. No tents being used adds greatly to the mobility of an army. Englishmen rather shudder at the notion of life without any protection from the wind, rain, and dews, because they naturally take a gloomy view of the weather, but, after the first few days' experience, most soldiers like it.

In selecting a site for a bivouac, wood and water are, as for camps, the great requisites, but a good supply of the former is more essential for the bivouac than for the camp, as it is robbed of half its enjoyment, unless the men can have large fires to sleep near. This is all the more essential if the nights are cold. In cold weather, woods are the warmest place for a bivouac. The sanitary principles that apply to the selection of camps hold good in choosing the site for a bivouac; dry and sheltered positions should be selected.

Cavalry should wheel into open column of squadrons, picket their horses, and each man sleep in front of his own horse. Infantry having wheeled into column should pile arms, and sleep as they then stand in the ranks, the officers in both instances sleeping on the reverse flank. The artillery having picketed their horses and placed the guns, waggons, &c., as if for a camp, should, like the cavalry, sleep opposite their horses.

A few logs of wood, sods of grass or turf, or stones piled up to windward, afford good protection, and add greatly to comfort. If there is time and material at hand, shelter, after the backwoodman's fashion, should be made by driving into the ground forked sticks, 4 or 6 ft. long, and resting a pole between them; branches should then be laid against it to the windward side at an angle of 45°; bark or smaller branches being laid over them again until a good shelter is obtained. In doing this, remember that the thicker ends should always be placed uppermost, the leaves being, as it were, upside down; they will throw off the rain better in this manner. Little *pent houses made so* are most comfortable when slept under with a good *fire at one's feet.* If sufficient straw or leaves cannot be found, a hollow should invariably be scraped away for the hip to rest in. The small boughs of the American hemlock, laid with the stalks down, form a luxurious bed.

Men sleeping together should always club their blankets, so as to have one to sleep on, the other being over them. Too much attention cannot be paid to making the sleeping place comfortable. Unless men get good refreshing sleep they cannot sustain continued work. The company officers should be most energetic in this matter, for a little trouble bestowed in collecting dry grass, shavings, &c., may prevent your awakening some two hours before daybreak, chilled with cold, so that you cannot get to sleep again. Always contrive to have something to serve for a pillow. The writer has frequently made use of his sword-hilt, a log of wood, or a stone, and slept most soundly.

When one wakes in the morning, the limbs feel a little stiff; take a smart run, and the blood will soon begin to circulate quickly, whereas they who crouch down over their fires feel cold a long time.

Campaigning.—A great object with officers should be to keep those committed to their charge in good health. Without it, nothing can be accomplished. There are precautions to be taken, and rules to be attended to—the result of experience—which it is now disgraceful in an officer to be ignorant of. Were an officer commanding a regiment in any future war to order his men to dig large holes and pitch their tents in them, as was done by a genius before Sebastopol, a court martial would be justified in finding him guilty of the murder of those who died in consequence.

Change the position of camps as frequently as possible. When at a distance from the enemy, scatter divisions, regiments, and even individual tents as much as possible.

The mind and the body must both be attended to: each reacts upon the other. If the man is not well fed, well clothed and housed, the privations must soon tell upon his disposition and his temper. The result can only be sickness and uselessness. See that your officers and men have something to eat and drink before they begin their work, no matter how early. A cup of hot coffee and a biscuit is a good morning meal before the regular breakfast.

You cannot pay too much attention to cooking: try to get the men's rations varied as much as possible, and see that no opportunity is lost of buying vegetables for them. Never hesitate to report at once any improvement that strikes you as feasible and advantageous. If you find that the meat ration is not sufficient, report it at once.

Get your men hot meals when possible. If preserved or cooked rations have been served out, and there is time, they should be warmed or made into soup or bouilli before being eaten. This is of great consequence after a long march or a day of hard fighting. Save your men when you can, as you would your horse; they will be all the more fit for a great effort when you require them to make it. Reduce the number of your sentries as much as possible. The most ignorant man knows the advantage of creature comforts to the efficiency of the soldier; but we are prone to regard our soldiers as machines, merely requiring a certain amount of bread and beef, washed down by a gill of rum, to keep them not only in motion, but in perfect order. We are only now awakening to the necessity of developing their moral qualities. A man without hope makes an indifferent soldier; but one without good spirits and cheerfulness is worse than useless. Strive, then, by all possible means to develop—to create, if necessary—the high moral qualities of human nature in those serving with you.

The powers of a weak man, endowed with hope and lofty courage, are always of greater service to the State than those of a great strong fellow who is discontented and desponding.

Employ officers to superintend all large fatigues, and associate them with the men in all their work. Often have I blushed for my profession when I have seen officers sitting down under some shelter reading a book, whilst their men were working, or rather, I should say, supposed to be working; for after a little time, when the men see that their officers do not take an interest in what is going on, they soon follow suit.

Officers in command of regiments and brigades cannot be too strict in such matters, and any staff officer who fails to report or take notice of such irregularities is unfit for his position.

Care should be taken that each soldier has a housewife, and when time permits attempts should be made to have them instructed in the art of mending their clothes, and even their boots.

In the field no man's hair should exceed half an inch in length; this is essential for the well being and cleanliness of soldiers. It can only be carried out successfully when the officers of regiments and departments set the example. None except those who have worn their hair after such a fashion can appreciate the luxury it confers on service. No man can have that smart bearing, which is the outward mark of a soldier, who allows his hair to be so long that he can part it. A well-cropped head is the first great step towards cleanliness. The beard and whiskers should be cut close about once a week. Hair is the glory of a woman, but the shame of a man. Want of cleanliness is a sure source of disease at all times, but especially so when a large number of men are living together in crowded tents.

If a camp is stationary for even a week in any one locality, endeavours should be made to provide a washing place for the men, where there shall be abundance of water: they should be encouraged to wash themselves all over in cold water whenever opportunities offer for doing so. It is of the utmost consequence that the feet should be washed frequently.

It is difficult to wash clothes during a campaign, but it can really be dispensed with for a long time without injury to health; linen or cotton shirts should not be used in the field; two good flannel shirts of a greyish colour are ample for all ranks, if worn day about; when the shirt is taken off it should be hung up, stretched out, and exposed to the sun and wind. It should be shaken and beaten with a small stick, or well brushed. The same rule applies to trousers or drawers, when such are worn. Washing soon ruins flannel and all woollen materials.

Never allow your men to be uselessly idle, but let them see that the work you keep them at is for their own benefit. At once give up the humbug of the barrack square and its aimless exercises. Practise your men in marching. The army that can march best is the best army, and the regiment that can march best in an army is the best in that army.

The running drill has been a glorious innovation. What really fatigues and disgusts soldiers is the time that is dawdled away in parades. If the division at any of our camps at home is to go through a field day, think of the time that elapses between the fall in being sounded on regimental parades, and when the division is called to attention by the general officer.

Commanding officers new to war try to carry out the routine of home service in the field; it requires a man of good judgment to select those rules that can never be relaxed, and for negligence of which men should always be punished, from the others that should not be enforced.

If men have good regular hot meals, and are comfortably warm at night, they never become discontented by hard work. See article on Camps, for details of the work to be done. Two days in every week at least regiments should march from five to ten miles, attention being paid to the advice laid down under the article on Marches. Regular work and good food will get Englishmen into training, so that they can do anything.

There can be no doubt that all the diseases of cholera, dysentery, diarrhœa, scurvy, typhus, and malarious fevers, which have been the scourge of armies from the earliest days to this time, have arisen from bad or insufficient food, impure air, bad water, overcrowding in tents or huts, and the misery and depression of spirits ensuing from these evils.

The men's boots and socks to be frequently inspected, so as to be certain that they are always in a fit state for a march. If these points are carefully attended to, your men will go into action fit for work.

Once there, and having been taught the truth of the distich 'fire low, fire slow,' you may confidently count upon victory.

Cooking.—In permanent camps it is desirable to establish regular coppers or boilers for cooking. When possible, 3 pots should be provided for each company: one for meat or soup, to hold 1 quart per man; one for vegetables, to hold 3 pints per man; and one for tea, to hold 1 pint per man. When only one cooking vessel is available, its minimum capacity should be 3 pints per man.

Calculating losses for cutting up, bones, cooking, &c., the soldier does not get more than half the weight of his meat ration to eat.

BOILING meat entails a loss in weight of about 30 per cent. The water should never be higher than 160°; if hotter, the meat becomes hard and shrunken; the lower the temperature the better are the nutritive juices kept in. The larger the pieces of meat the better. Put the meat into boiling water, let it boil for five minutes, and then reduce the temperature of the water, either by pouring in cold water, or by reducing the fire until it is about 160° Fahr.; that is, as hot as the finger can be put into it without scalding. Allow a quarter of an hour for every pound the meat weighs.

ROASTING.—The loss is a little less than in boiling. The meat should be exposed at first to a great heat, for the purpose of keeping in the juice Allow a quarter of an hour a pound.

RECEIPTS FOR COOKING.

Meat Soup.

16½ lbs. meat.
1 lb. onions.
1 lb. flour.
5 ozs. salt.
¼ oz. pepper.
5 ozs. sugar.
Small faggot of herbs.
3½ gallons water.

Separate the *large* bone from the meat, also the gristle; cut the meat into pieces of about 4 ozs.; take 8 ozs. of the fat, and chop it up; slice the onions, put the fat in the boiler; when melted, add the onions, stir them well, so that they do not get brown; in five minutes add the meat, which keep stirring and turning over for five minutes longer; the meat ought to be warm through; then add the boiling water by degrees, let it simmer gently for one hour, mix the flour with cold water very smooth, add it to the soup, with the salt, pepper, sugar, and herbs; simmer gently for thirty minutes, keep stirring it to prevent the flour from settling at the bottom.

The great error commonly committed in making soup is doing it too rapidly, which renders the meat hard and tasteless. Bones and scraps of meat should be collected after every meal, and put down to simmer for next day's soup.

Irish Stew.

16½ lbs. meat.
16 lbs. potatoes.
4 lbs. onions.
6 oz. salt.
1 oz. pepper.
¼ lb. flour.

Cut the meat away from the bone, and then into pieces of ¼ lb. each, the loin and neck of mutton into chops, disjoint the shoulder, and cut the blade-bone into four pieces (if the leg, cut into slices) ¾-inch thick, rub them with the salt, pepper, and flour, and place the meat in the boiler with some fat, brown on both sides; then add the onions whole, and then the potatoes, and enough water to cover the potatoes; stew gently for two hours, keep the fire down and well covered during the cooking.

Beef and Mutton Pudding.

16¼ lbs. meat.]
6 lbs. flour.
1 lb. onions.
2 ozs. salt.
¼ oz. pepper.
Sweet herbs.
Water.

Cut the meat from the bone and sinews, take away 1¼ lb. fat for the paste. Cut the meat into pieces of ¼-inch thick, and rub it with half the salt, pepper, chopped onions, and herbs; place it in a large dish, or five small basins, with a little water. Then make the paste as follows: Place on the table the flour, make a hole with the hand in the centre; then place in it the chopped fat, salt, and pepper; then put some water in the hole; gradually stir the flour into it, until all the flour is moistened; and it forms a stiff paste; work and roll it well for two minutes; let it remain as a ball for ten minutes; roll it out to the thickness required; put a piece of the paste round the inside of the dish or basin, and cover it with the paste, taking care that the edges are properly joined together, or the gravy will boil out. Steam the large puddings for two and a half hours, and the basins for two hours.

How to soak, and plain boil, the rations of Salt Meat.—To each pound of meat allow half a pint of water, or a pint if handy; do not let the pieces weigh more than 3 or 4 lbs. each. Let them soak about eight hours, or all night if possible. Wash each piece with your hand to extract as much salt as possible; it is then ready for cooking. If less time is allowed, cut the pieces smaller, or parboil the meat for twenty minutes in the above quantity of water, which throw off, and add more. Simmer gently for three hours, and serve. Vegetables or dumplings can be boiled with it.

Salt Meat, to prepare hurriedly.—Warm it slightly on both sides—this makes the salt draw to the outside—then rinse it well in a pannikin of water. This process is found to extract a great deal of salt, and to leave the meat in a fit state for cooking.

How to stew Fresh Beef, Pork, Mutton, and Veal.—Cut or chop 2 lbs. of fresh beef into 10 or 12 pieces; put these into a saucepan with 1¼ teaspoonful of salt, 1¼ teaspoonful of sugar, ¼ teaspoonful of pepper, 2 middle-sized onions sliced, ¼ pint of water. Set on the fire for ten minutes, until forming a thick gravy. Add a good tablespoonful of flour; stir on the fire a few minutes; add a quart and a half of water; let the whole simmer until the meat is tender. Beef will take from two hours and a half to three hours; mutton and pork about two hours; veal one hour and a quarter to one hour and a half; onions, sugar, and pepper, if not to be had, must be omitted; it will even then make a good dish; ¼ lb. of sliced potatoes or 2 ozs. of preserved potatoes; ration vegetables may be added, also a small dumpling.

For a hurried dinner cut your rations into pieces about the size of a penny.

but three or four times thicker. Skewer them on a piece of iron wire, or hard stick: a few minutes will cook them if hung before the fire.

Vegetables must be carefully washed and cleaned from insects. Green vegetables should be boiled fast in plenty of water, and drained at once when done. They sink when sufficiently cooked. *Potatoes* take from 20 to 30 minutes boiling; they show signs of breaking when they are done, which can be ascertained by sticking a fork into them. *Carrots and parsnips* take from 20 to 45 minutes boiling. Young nettles, sweet docks, turniptops, or the young leaves of mangel-wurzel make good green food. A little pepper and salt should be added to season them. Dandelion leaves, especially when young, make a most agreeable salad. *Dried and compressed vegetables* of all kinds should be soaked from 4 to 6 hours in pure water, and then boiled slowly; if there is any bad taste from putrefaction having commenced, a little chloride of lime will remove it. The '*mixed compressed vegetables*' should be boiled in a little water for about half an hour; *the cabbage* to be boiled in sufficient water for half an hour, the *carrots and turnips* to be boiled for about 15 minutes, potatoes to be boiled in sufficient water for half an hour. Rice should be washed and soaked, and then boiled in plenty of water, *without salt*, for 20 or 25 minutes, then some salt should be thrown in, and the water drained off. Each grain will then be separate.

To make Tea.—If possible, it should be made in a vessel used solely for that purpose; on service this is generally impossible, but it renders great care on the part of the cook all the more essential. Before the tea is made the kettle must be well washed, and heated with a little hot water and well rinsed. The water for the tea should then be put in, and boiled before the tea is put in. Care to be taken that the water is boiling fast when this is done. If possible, the boiling water should be poured from one kettle into another containing the dry tea. The lid should then be put on, and the pot placed beside (but not on) the fire for 4 or 5 minutes before serving it out. Much depends upon the softness of the water: if the water is hard, add, when possible, a small teaspoonful of soda to the camp kettle full (for 5 men each).

To make Coffee.—The same rules apply, as regards cleanliness and the description of water, as in making tea. Sometimes there is only time to prepare it by boiling; but, if possible, it is better to heat the coffee in the lid of the kettle, then put it in a kettle, and pour the boiling water on it, leaving it to stand near the fire for 5 minutes, when it will be fit for use. When there is time to do so, it should be strained through a cloth of some sort. When made, the dregs should be collected and well boiled; if this decoction is poured over fresh coffee, the result of the second making will be found strong and aromatic. To clear coffee some cold water should be poured in from a height. The cold water sinks through the coffee, and carries down the suspended particles, *Plum Pudding.*—Put into a basin 1 lb. of flour, ¼ lb. of raisins (stoned, if time be allowed), ¼ lb. of the fat of salt pork (well washed, cut into small dies, or chopped), two tablespoonfuls of sugar or treacle; add a half pint of water, mix all together; put into a cloth tied tightly; boil for four hours, and serve. If time will not admit, boil only two hours, though four are preferable.

Plain Rice Pudding, in which no eggs or milk are required.—Put on the fire 12 pints of water in a moderate-sized saucepan; add to it, when boiling, 1 lb. of rice or 16 tablespoonfuls; 4 ozs. of brown sugar, or 4 tablespoonfuls; 1 large teaspoonful of salt; the rind of a lemon thinly peeled; boil gently for half an hour; strain the water from the rice, keeping the rice rather dry.

The rice-water is then ready for drinking, either warm or cold. The juice of the lemon may be introduced, which would make it more palatable and refreshing.

Add to the rice 3 ozs. of sugar, 4 tablespoonfuls of flour, and half a teaspoonful of pounded cinnamon; stir on the fire carefully for 5 or 6 minutes; put it in a tin or a pie-dish, and bake.

By boiling the rice a quarter of an hour longer it will be very good to eat without baking.

This will produce 5 lbs. of pudding, 6 pints of most wholesome beverage. The lemon and cinnamon may be omitted, and it will still make palatable pudding and good beverage; the latter is admirable for sick men, particularly for those suffering from diarrhœa.

Lemonade.—Peel thinly the third part of the rind of a lemon, put it into a basin with two tablespoonfuls of sugar; cut the lemon in two, lengthways, and squeeze out the juice over all; stir round for a minute to form a syrup; pour in a pint of water, mix well, remove the pips, and it is ready for use. If you can strain it through a clean cloth, so much the better; 1½ tablespoonful of lime juice may be used instead of the lemon.

Diet.—To be considered here under two conditions: when on the march, i.e., marching five or six days in the week; and when halting temporarily in camps.

When marching continuously the men reach camp very hungry, and consequently hurry on their cooking as much as possible; the result is that their dinners are generally indifferent, as there is not time to make good soup. Officers commanding regiments would do well to have all bones and scraps of meat remaining after the men have had their dinners collected and put down to simmer together, with some small portion of the ration reserved for that purpose, so that all should have a good basin of soup, at about 4 or 5 in the afternoon. The ration of meat might, in fact, be increased a quarter of a pound with great advantage, whilst the men are doing hard work; the best fleshy parts used at dinner, and the bony portion reserved for the evening soup.

Diet is now a science, and the recent discoveries in it have had the effect of removing the old, stupid, and, I may say, cruel notions regarding the *system for training* either men or horses. The appetite of men taken from quarters, placed under canvas, and marched daily, increases considerably for the first few days; meat that would be indigestible from toughness whilst living in barracks is eaten with appetite in the field; 1½ lb. of fresh meat (bone included) is by no means a large ration for men whilst marching continuously. A man of average size and activity will, 'under ordinary conditions of moderate work, take in 24 hours from $\frac{1}{26}$th to $\frac{1}{20}$th of his own weight in solid and liquid food,' 'the solid being to the liquid as 1 to 2.' The daily ration should be varied as often as possible, for men tire of the same food day after day; the greatest possible variety ought also to be made in the mode of cooking it.

Give your men as little spirits as possible; tea and coffee are much more sustaining and more portable. If in countries where light wines are plentiful, induce your men to drink them (nothing beyond 15 per cent. alcohol being used); they are good anti-scorbutics, and scurvy is the one great disease to guard against in war.

The old superstition that 'grog' is a good thing for men before, during, or after a march, has been proved by the scientific men of all nations to be a fallacy, and is only still maintained by men who mistake the cravings arising solely from habit for the promptings of Nature herself. It is the commonest thing to see men, even when travelling at home, taking brandy 'to keep them warm.' It is an ascertained fact that alcohol of any sort reduces instead of increases the temperature of the body.

The use of spirits in cold weather has been well tested during the various polar expeditions, the medical officers of which all condemn it as a preventive against cold.

No men require greater endurance than the trappers of British North America, and none do a greater amount of hard physical work than the voyageurs and lumbermen there, none of whom drink spirits when in the woods, tea being their constant beverage. Our armies in Kaffraria had no spirit issued to them as a rule, and no army in the field was ever more healthy (if any other ever was as free from sickness). Our experience in the Indian mutiny also carries out this theory; for months in some places our men were entirely cut off from all liquor, and they were healthier than when subsequently it was issued to them as a ration. By increasing the allowance of tea, and abolishing that of rum, you diminish the supplies to be carried to a great extent, whilst you add to the health and efficiency of your men; their discipline will improve as their moral tone is raised, engendering a manly cheerfulness that spirit-drinking armies know nothing of. The use of rum has been so long the custom in our armies that it is difficult now to discontinue it. It can only be effected by a cheerful co-operation on the part of the officers. If the men do not receive rum and have not the power of buying it, the use of wine in camp by officers should be given up. It is humbug for *an officer to lecture men about* drinking, advising them against the use of *spirits, and then go to his tent to* be merry over a bottle of sherry. Wine with the officer holds the place of rum with the private; and although the bottle of wine may do the former no harm, he ought cheerfully to go without his luxury, when he compels those under his orders to forego theirs; feeling that his conduct is for the good of the service should amply compensate him for the privation. The allowance of baggage to which officers are entitled does not admit of their carrying about luxuries such as wine with them.

Dr. Parkes recommends that, after the evening meal, the tea leaves should be heated again in sufficient quantity of water to enable the men to fill their water bottles for the next morning's march.

Officers in command of companies should impress upon their men the danger to which they expose themselves in drinking bad water. Poisonous matter of many descriptions may be taken into the stomach in it. In Algeria leeches have in this manner been frequently taken into the body, causing dangerous internal bleeding.

There can be no doubt as to the injurious effect upon the health produced by impure water. Dysentery and diarrhœa ensue from drinking it, and in the opinion of the best army surgeons it is one of the chief causes of those fearful diseases which have devastated armies in so many wars. It has lately been proved that, if bad water does not produce cholera, its use predisposes the body to take it when it is prevalent.

Bread should always be issued, when possible, in preference to biscuit.

We are too fond of issuing salt meat to our men. Doing so saves the commissariat trouble, so that department is, in consequence, always desirous of serving it out. Except under peculiar circumstances, it should not be issued during marches, as it creates thirst. It is much easier to drive live cattle than to carry great hogsheads of salt pork on waggons.

It is to be regretted that, during peace, salt provisions are not served out once a week to our men all over the world, in order to accustom them to cooking and eating them.

Medical and Surgical Hints.—On all outpost and detached duties hours, if not days, may elapse before the services of a doctor can be procured: the following hints may, therefore, be useful.

Bleeding from Wounds is from a vein or artery: from the former it is seldom of much consequence; it is distinguished by the dark colour of the blood; it requires merely the application of cold water and the slight pressure of a bandage either over the wound itself or between it and the extremity of the injured limb: the limb should also be raised to a higher level than the body. In all cases of bleeding the first consideration is to put the wounded man in a recumbent position: this is imperatively necessary in all serious cases. A man unconscious from loss of blood will often revive at once when placed on his back with his head on a level with *his body.*

Bleeding from an Artery is known by the bright red colour of the blood and by its spirting out in jets corresponding with the beats of the pulse. Unless stopped at once the wounded man must die. To do so it should be remembered that it is only necessary to compress the injured artery against the bone between the wound and the body. Having placed the man as described above, feel for the pulsating artery on the inside of the limb above the wound, and when found keep up a steady pressure with the tips of the fingers, which will control the bleeding; two men, one relieving the other every few minutes, can stay it for a long time in this manner. The pressure should be in towards the bone. If a tourniquet is to be had, apply it just above where the pressure of the fingers is found to control the bleeding. A silk or cotton handkerchief twisted tight by means of a stick passed through the slack is a good substitute, a bullet or round stone being placed over the artery.

The inside seam of the coat or jacket follows the general course of the arteries in the arm. If the wound is in the leg, the artery can be easiest found in the groin, from whence it passes down the inside of the thigh, winding round underneath to the hollow behind the knee. If wounds are below the elbow or knee, the pressure should be applied above those joints. If you cannot find the artery, fill up the wound with some cotton or linen, and bandage as tightly as you possibly can directly over the wound. Bleeding from gunshot wounds is generally slight at first. I have seen limbs cut off by round shot, when there was really no bleeding at all; still, precautions are always necessary, and a man with an artery cut should never be left for a moment without some one by him. The edges of sabre wounds should be brought together and sewn, or well secured with sticking plaster. *In removing the wounded from the field*, or to carry them on the march when you have no ambulance or stretchers, construct a framework with two poles 8 ft. long, leaving 6 in. at each end as handles; lash 3 short pieces across, so as to keep the poles 2½ ft. apart, one piece to come just behind the man's head, one at his feet, and one in the centre; to this a blanket is securely fastened at each corner, and along the sides, if there is time to do so. A wounded man can be carried very comfortably in this manner.

If a leg is fractured, place the man on his other side, and place the injured leg exactly over the other, with any soft material that may be at hand between them, and then bandage both legs firmly together; thick wisps of straw with thin sticks or twigs added to increase the support, placed lengthways along the broken limb, and bandaged tightly to it, is a good plan with either broken arms or legs.

Broken arms should be encased between two pieces of board and supported in slings. A man with a fractured limb should have these precautions taken for him before he is removed. Stimulants must be given diluted with plenty of water: taken pure, they are dangerous.

In malarious countries three grains of quinine taken daily is a good preservative against fever.

Emetics.—A charge of gunpowder dissolved in water is a good and safe emetic, or two tablespoonfuls of mustard in warm water, followed by large quantities of the latter. The strongest emetic is 10 grains of bluestone (sulphate of copper), or 20 grains of sulphate of zinc in water, followed by copious draughts of warm water.

Burns and Scalds should be at once covered with cotton wool, or plenty of lint, to keep them from the air, oil being first freely applied to the injured part.

Rheumatism.—Equal quantities of ammonia or spirit of turpentine and sweet oil well rubbed on with the hand is good. If the following ingredients are to be had, mix up in equal quantities (say half of an ounce), sulphur, nitre, flour of mustard, Turkey rhubarb, and gum guaiacum; take a teaspoonful in a wine-glassful of water every alternate night.

Sore feet from marching should be bathed at night in tepid water, having a few lumps of alum dissolved in it: if there are blisters, they should be pricked with a needle or sharp knife, but the skin must not be torn off. Previous to beginning the next day's march, the tender places should have soft soap applied to them, or, if it is not to be had, any sort of grease. Whisky or rum and water applied to the feet is the best preventive against blisters.

To restore a half-drowned man.—Do not remove him into a house, but try your remedies 'on the spot, in the open air, exposing the chest and face to the breeze.' 'Place him gently on his face, with his wrist under the forehead;' this will clear the throat: observe him keenly for some seconds, to see if he breathes; if not, turn him well and instantly on his side; 'excite the nostrils with snuff, the throat with a feather, &c., dash cold water on the face, previously rubbed warm;' if this is unsuccessful, replace him 'on his face, raising and supporting the chest well on a folded coat: turn him very gently on the side, and a little beyond, and then briskly on the face alternately, repeating these measures deliberately and perseveringly fifteen times in a minute, occasionally varying the side.' Each time that he is on his face, 'make equable but sufficient pressure, with brisk movement along the back of the chest; removing it immediately before rotation on the side.' If not too late, the result will be respiration. Whilst this is being done, others should have removed his boots, putting his feet against their own stomachs next the skin; if warm bricks or warm water are to be had, his extremities may be warmed by them; hot bricks, or stones, or pieces of any metal may be advantageously placed over his groins, and under his armpits. 'His limbs to be rubbed upwards with firm grasping pressure, and with energy, using handkerchiefs, &c.' This induces circulation; as he revives, dry and warm his limbs, and when dry, clothe him plentifully.

The Weather.—The weather has the greatest influence upon military operations. It is needless to recount the many instances where the most accurately calculated operations have been brought to nought, and perhaps turned to disaster, by such little trifles as a shower of rain, &c.

The changes of the moon have great influence upon the weather.

A halo round the moon indicates approaching wet weather; the larger the circle, the nearer the rain. There is an old rhyme to the following effect regarding the changes of the barometer: 'Long foretold, long last; short notice, soon past: First rise after low, foretells stronger blow.'

The old farmers' predictions of fine or rough weather, deduced from observing the flight of birds, are really based upon truth, and can be explained scientifically. When swallows fly high, expect fine weather; when they fly low, the reverse.

Sea-gulls flying inland or collected there in large numbers are forerunners of bad stormy weather.

Admiral Fitzroy says, whether clear or cloudy, a rosy sky at sunset presages fine weather; a red sky in the morning, bad weather or much wind (perhaps rain); a grey sky in the morning, fine weather; a high dawn, wind; a low dawn, fair weather. Soft-looking or delicate clouds foretell fine weather, with moderate or light breezes; hard-edged oily-looking clouds, wind. A dark, gloomy blue sky is windy; but a light, bright blue sky indicates fine weather. Generally, the softer the clouds look, the less wind (but perhaps more rain) may be expected; and the harder, more 'greasy,' rolled, tufted or ragged, the stronger the coming wind will prove. Also a bright yellow sky at sunset presages wind; a pale yellow, wet; and thus, by the prevalence of red, yellow, or grey tints, the coming weather may be foretold very nearly; indeed, if aided by instruments, almost exactly. Small inky-looking clouds foretell rain; light scud clouds driving across heavy masses show wind and rain; but, if alone, may indicate wind only. High upper clouds crossing the sun, moon, or stars, in a direction different from that of the lower clouds, or the wind then felt below, foretell a change of wind. When sea birds fly out early and far to seaward, moderate wind and fair weather may be expected; when they hang about the land, or over it, sometimes flying inland, expect a strong wind with stormy weather. When birds of long flight—rooks, swallows, or others—hang about home, or fly up and down or low, rain or wind may be expected. When animals seek sheltered places, instead of spreading over their usual range; when pigs carry straw to their stiles; when smoke from chimneys does not ascend readily (or straight upwards during calm), an unfavourable change is probable. Dew is an indication of fine weather; so is fog. Neither occurs under an overcast sky, or when there is much wind.

PART II.

Embarkations.—If boats are used in embarking, the men should take off their packs on getting into them; they must be warned to remain perfectly quiet, and the strictest silence must be enforced, the officers and N.C. officers being duly distributed throughout them. When a regiment or detachment proceeds on active service in the field, the embarkation of soldiers' wives is altogether forbidden.

If possible, the colonel, adjutant, and quartermaster of each corps should go on board the transport about half an hour before the men. The exact position of each company can thus be marked in chalk on the mess-tables; so that, according as the men come alongside, they can be marched down to their places at once, where they are to sit down, holding their packs and rifles, and remain there until ordered to move. The men to be told off into messes before leaving the shore, according to the size of the tables. The rifles should then be passed along a line of men, and put into the racks by companies, barrels inwards, and the knapsacks placed by the men in the battens over their mess places; if the ammunition is to be left in the pouches, they must be sent below and stored in a magazine, but it is generally better to take out the ammunition and put it there, hanging the pouches over the mess place.

Medical Arrangements.—The new regulations on this subject have not yet been published, but it may be assumed that the oldfashioned cumbrous plan of treating sick in the field regimentally will never be again attempted. It has been discontinued during the manœuvres of the last two years, and the system, long since recommended in 'The Soldier's Pocket-Book,' has been adopted, viz., field hospitals to meet the medical requirements of each division are attached to it, where all the sick are treated.

The general principle upon which alone the sick and wounded of an army can be efficiently provided for is as follows: All slight cases of illness, such as diarrhœa, colds, bruises, &c. &c., should be treated by the surgeon attached to each battalion. All cases that require the patient to receive more careful treatment and diet than can be afforded to men in bell tents, without hospital appliances or equipment, should be sent to the field hospital, except cases of an infectious nature, such as typhus fever, smallpox, &c., which should be sent direct, and with the least possible delay, to some general hospital appointed especially for their reception. It will be for the medical officers in charge of field hospitals to decide what cases shall be retained there for treatment until fit to return to their duty, and which shall be sent to the division hospital.

To each corps is allowed one 'Field Companion,' which is to be carried by an orderly; it is to be obtained on requisition from the P.M.O. Its weight is 11 lbs. 4 oz.

In action the surgeon attached to each battalion should not attempt to perform operations, but should merely take measures to save life, until the wounded man can be conveyed to the nearest field hospital.

No man, under any circumstances, to be permitted to leave the ranks during an action, for the purpose of looking after the wounded. The removal of the wounded must be attended to by the officers and men attached to the divisional ambulance.

THE PROVOST-MARSHAL is vested by the articles of war with exceptional powers, and is authorised to inflict summary punishment on any soldier or individual connected with the army whom he may detect in the actual commission of any offence against order and discipline. All ranks are accordingly to afford that officer and his assistants every aid in their power, so long as the authority with which they are trusted is not abused.

Punishments with an army in the field must be summary. It should be remembered that laws which in peace suffice to keep the population of cities in order will not answer the same purpose in armies during war.

The custom and regulations of our service authorise the P.M. and his assistant (the latter being a commissioned officer) to inflict summary punishment upon the soldier detected in the actual commission of theft, or other offences militating against good order. Such punishments should be the exception and not the rule; for, unless in cases of peculiar emergency, such as during an action, the assault of a town, or the line of march when in close proximity to the enemy, the ordinary course of military justice ought to be sufficient.

Neither is he ever to interfere (unless called upon by the commanding officer to do so) with offenders when they are with their own officers.

All camp followers, or individuals of any sort accompanying an army in the field, either for business or pleasure, are amenable to such punishments. When on the march, all officers in command will aid the P.M., by giving him guards, taking charge of prisoners, giving him patrols (they should, if possible, be cavalry), &c., when he applies for them, unless, in their opinion, there are sufficiently good military reasons for refusing to do so.

When in camp, the P.M. and his assistants must be always on the move, visiting the neighbouring villages and places at which they think breaches of order and discipline are likely to be committed. He must render every protection in his power to the inhabitants of the country, and be always prepared to inquire into their complaints. This will go far towards encouraging them to bring in provisions for sale.

All guards, whether commanded by officers or non-commissioned officers, must take charge of any prisoners handed over to them by the P.M., or any of the police acting under his orders. Those in command of the guards to take down in writing the crime and the name of the police officer handing the prisoner over. If such prisoners have not been reclaimed previous to the guard being relieved, they must be sent to their regimental guards with a report of the circumstances.

Employment of Cavalry in Action.—The trot is the true manœuvring pace for cavalry: if changes of position and the advance preliminary to charging are made at the gallop the horses are blown before that moment when brought into actual contact with the enemy they should be able to exert their greatest speed.

The ground should be hard, level, and free from hedges, ditches, ravines, woods, or fences; nothing is more trying than vineyards, over which no cavalry can gallop. The debated questions of arming and equipping cavalry, and of its general organisation, are foreign to this subject. Whether our cavalry is to be changed into mounted rifles, or to remain as it is at present, assisted by special corps armed with long-range rifles trained to fight on foot, it will be, in the opinion of the writer, an unfortunate day for the English general who is called upon to fight an enemy who has a proportion of good cavalry, whilst he himself has none, being deprived of them in pursuance of some cleverly stated theory.

Without cavalry it is really impossible to obtain information of the enemy's doings, or to keep up your communications efficiently.

The cavalry arm should consist of young men; an old man, as a rule, is out of place in its ranks, either as an officer or as a private. It wants the dash and fire of youth; age brings caution, and with it hesitation.

The use of cavalry in action may be briefly stated as:

1st. To charge upon first coming into the enemy's presence, for the purpose of gaining time, whilst the infantry deploy, and a sufficient force is got into position to keep the enemy in check.

2nd. For charging cavalry or infantry, if possible in flank, that had been repulsed in their attack upon infantry, so as to complete their rout and take prisoners.

3rd. To cover the retreat of infantry repulsed in its attack upon the enemy's position, and either by charging or assuming a threatening aspect to prevent it from being followed.

4th. To check a serious attack from infantry upon the position, by forcing it to form square, either by charging, or by threatening to do so.

5th. Charging batteries that cannot otherwise be silenced. This should only be resorted to when they can be taken somewhat in flank, or when they are but weakly supported.

6th. Grand charges in force upon infantry. Unless the infantry has been well shaken by a heavy artillery fire, or is of an inferior quality, or is taken at a disadvantage, such as in the act of deploying, or some other manœuvre, these grand charges are but waste of men and horses, if made against infantry armed as at present. Circumstances may, however, render it necessary to make this sacrifice for the purpose of gaining time.

7th. To disperse and cut up lines of skirmishers that had ventured too far into open ground; two or three squadrons are enough for this purpose.

8th. Supporting the flanks of columns pushed forward to attack, and so protecting them from charges of cavalry.

9th. Taking up the position vacated by such columns of attack, or filling any gaps that may occur in the line during an action, or at first whilst the troops are getting into position.

10th. Furnishing detached parties and patrols to the flanks and rear, to guard against surprise; to be performed by light cavalry.

11th. Being victorious, to pursue an enemy *à outrance*, allowing him no time to rally, or even to breathe, after his defeat.

It must be remembered that the moral effect produced by cavalry is much greater in proportion to the actual damage it does than that of infantry.

It is a favourite argument with those who, basing their opinion on theoretical notions, think that cavalry is a species of anachronism, to point to the smallness of the numbers actually killed by that arm in action. If the same calculation was made regarding artillery, it would be found that the actual loss it inflicts upon the enemy is in no proportion to the high value put upon it. Its moral effect is powerful; it frightens far more than it kills.

It is not to be expected that the yeomanry will ever be used for charging in large masses; the only duty it is likely to be called upon to perform in the event of this country being invaded, is that of obtaining information of the enemy's doings by patrols and scouting parties, and protecting our own army when halted and on the move, both from surprise and from the inquisitiveness of hostile reconnaissance. Indeed, it may safely be said that the functions of cavalry generally have been revolutionised, although the necessity for mounted soldiers exists as strongly now as at any previous era of military history. In my humble opinion, it is greatly to be regretted that our yeomanry do not aim more at being the best mounted infantry in *the world—a position they* can easily attain, and which they are eminently *qualified to fill with distinction*—instead of straining at being cavalry pure and simple—a position that all thinking soldiers know to be beyond their reach. Our yeomanry, if armed like infantry, and well trained to skirmish on foot, would be an invaluable force in the hands of an able soldier, like the Confederate General Stewart, for hanging upon an enemy's flank, cutting into his rear, gaining intelligence of his doings, and screening our own movements from his observation, whereas, organised and drilled as they are at present, they add but little to our military strength.

For the duties in connection with patrols and scouting, see pp. 74, 80.

Employment of Infantry in Action.—Infantry is the backbone of an army. Campaigns can be carried on without cavalry or artillery, but nothing serious can be effected without the aid of men fighting on foot. At the end of a war it will be found that, putting sieges out of the question, the actual damage done has been by infantry. It is its fire that kills and wounds, and its charges that win and defend positions.

If it is very good, it can compensate for inferiority in the quality and numbers of the cavalry and artillery. If bad, and you are opposed to a good steady infantry, make it a war of marches and manœuvres, engaging in daily little affairs until you have brought your infantry up to a fair standard of excellence.

The four ways in which British infantry have been hitherto trained to fight are:

1st. As skirmishers.

2nd. In position in line, with their fire.

3rd. An advance in line to attack an enemy, such attack ending by a bayonet charge.

4th. In square to receive cavalry.

Skirmishing.—Formerly specially instructed men were required for this work, but now no infantry are of any value in the field unless they are good skirmishers. It was a noble trade that of the light infantry soldier, and an army that had really good light troops was indeed happy. It could sleep at night in security, and could march at its ease, safe from surprise at all times. By means of skirmishers the enemy's sharpshooters were in action kept at a respectful distance, whilst his gunners were harassed at their guns, their horses shot, every joint of his armour tried, and the weak places thoroughly probed by a searching fire; his plans discovered, the position of his reserves made known, and all his columns approaching to attack riddled with bullets.

Formerly a line of skirmishers was used in action to clear the way for the attacking lines or columns in its rear, but henceforth it must be itself the attacking line, and upon it must fall the brunt of every fight. Skirmishers must learn to forget the old lessons they were taught as to their special functions *in action*; they must rely upon themselves to capture positions, and not look to a formed line in their rear to do so. The day, when a stiff deployed line of men, shoulder to shoulder, could advance under fire are past, and the officer who would now dare to attempt such an operation under the fire of breach-loading rifles should either be tried for murder or lodged for life in a lunatic asylum. Formerly infantry was formed for battle in three lines, as 1st line, 2nd line, and reserves, the front being covered by a line of skirmishers, with their attendant supports and reserves, the 1st line and the 2nd being of equal strength. Henceforth the 1st line, of the same relative strength, will be divided at the beginning of an action into several lines, the front one being skirmishers, those behind it being supports to be sent forward to reinforce the skirmishers' line from time to time as required; in attack when its further advance had been checked, and in defence when it showed signs of weakness, and was unable to stop the enemy's progress. In order to prevent confusion as far as possible, it is most desirable that, when all these supports have been blended into the skirmishing line, battalions, and even companies, should be as little mixed up as possible; it is therefore in my opinion very advisable that the skirmishing line, when first formed at the beginning of an action, should be formed of a portion of every battalion, if not of every company, constituting the 1st line. This is a tactical problem to be worked out by those skilled in drill, and H.R.H. the Field Marshal commanding the army has lately published some experimental manœuvres on the subject. The war strength of a company of the line has been fixed at 125 N.C. officers and rank and file; it may therefore be possible to carry out this principle even as regards each company, so that when the final rush upon the enemy's position takes place the officers and men of every minor unit of formation may be together. A certain amount of confusion must ever be attendant upon an operation of this nature. In reading of the advance in line of English infantry during our most celebrated battles, we hear much of its steadiness, and but little or nothing of the great disorder that accompanied it; but all soldiers who have taken part in such an operation know well that disorder is inseparable from it when attempted under fire. In confessing that we shall have to grapple with disorder in the manœuvre by which alone it is contended we can in future successfully assail an enemy's position, we do not therefore admit any new element in the operation, although we may have to deal with it under somewhat less advantageous circumstances than formerly. In an army, the less there is of harmony existing between its regulation tactics and the tactical requirements of the age, the greater will ever be the confusion attending its infantry attacks. Having recognised that disorder will be the never-failing attendant upon an attack made by skirmishers, let us set to work to practise our men in the operation until we have reduced that disorder to a well-understood system, until order is evolved from it. To practise men in nothing but 'steady drill,' where noise and confusion is impossible, is not the best way to prepare them for the disorder in which they will most certainly find themselves, even after the most successful charge that is made under fire. Men who have been drilled only in charges made with mathematical precision and death-like silence are prone to be appalled by the din, uproar, and confusion of a real onslaught. Never having been taught to contend against it, or even to realise it, they are dismayed by its unexpected presence. A ringing cheer is inseparable from charging. I do not believe it possible to get a line in action to charge in silence; and, were it possible, the general who would deprive himself of the moral assistance it gives the assailants must be ignorant of human nature. It encourages, lends nerve and confidence to an assailant: its very clamour makes men feel their strength as they realise the numbers that are charging with them. Nothing serves more to strike terror into a force that is charged than a loud ringing cheer, bespeaking confidence. As it is impossible to charge in action without noise, our mimic charges at Aldershot cannot have too noisy an accompaniment, for they would then be all the better practice for officers and men to reform in good order amidst great confusion.

In defensive positions the most strenuous exertions must be made by the skirmishers to hold their own, and they must not give way to anything short of a regular attack by a superior force of infantry. They should be constantly reinforced, and means must be adopted for keeping them well supplied with ammunition. If cavalry, by the partial charges of a few squadrons, try to drive them in, they should not run in upon their reserves or the main line, but hold their own behind hedges and fences or in broken ground.

When forced to retreat, skirmishers should contest every inch of ground, taking advantage of every rise or hillock, every bank or ditch, and all features that afford them cover.

2nd. *In position in Line*—that is, in holding a portion of a field whilst others are advancing to the attack, or waiting in a prepared position for the approach of an attacking enemy—the front will always be covered by skirmishers, so that no fire can be delivered till they have been driven in. When their front has been cleared and the enemy are advancing, it will then be for the line to open fire from the kneeling position *by volleys* and by *word of command.* File-firing should never be permitted under such circumstances, as it is almost next to impossible to stop it when the time arrives for rising up and charging. It will be for the general of the division to say when that time has arrived. Generals, brigadiers, their staff officers, and colonels must then spring to the front; the word is given, '*the line will advance*;' after a few paces at quick time, the word 'double,' a loud cheer, and all will be over in a few minutes. Charges should be made 'at the trail;' as it is *impossible to run* properly, or to see where you are going, if both hands clutch the rifle; it will be ample time to clutch the rifle with both hands when they come in contact with the enemy.

To await in the open an advancing enemy, and depend upon driving him back by your fire, is to court danger. The writer is aware of the Hythe theories propounded by men who have never been in action, that go to prove how an advancing line would be annihilated; but firing at a target is a very different affair from firing at a thick line of skirmishers advancing steadily towards you. In all such attacks there is a moment when the defendant must charge.

Experience in war teaches the general to feel, as it were from the pulse of his men, when that moment has arrived. Happy is the man who knows when to say, 'Up Guards, and at them!' There is no salvation for him who cannot do so. The opportunity passes in the twinkling of an eye, and if not seized on cannot be expected to return.

3rd. *An Advance in Line to attack an Enemy in Position.*—The English army at Alma advanced in two deployed lines up the steep slopes of the Russian position, the reserve in rear being in double column of companies from the centre of battalions, the whole covered by a thin line of skirmishers. The movement was successfully carried out, although not without great confusion, and the Russians were driven helter-skelter from a position which they had looked upon as impregnable. The Author believes, however, that it would be impossible to repeat such an operation against an enemy armed with breach-loading rifles, and that in future we must resort to other manœuvres when acting offensively under an enemy's fire.

As already described, attacks will in future be made by the line of skirmishers, who must be reinforced whenever they are brought to a standstill, each reinforcement pushing the line on by short rushes nearer and nearer the enemy, until at last you have established within striking distance of him a force having all the strength of a regularly-deployed line, without any of its stiffness or slowness of movement. Such a line of skirmishers, formed here and there by a few files only, at other points where a dip in the ground affords shelter, by several companies, taking advantage of every little inequality of surface in front to push on nearer and nearer to the enemy's position, will soon find some chink in his armour, some weak point from which he will recede, and thus enable you, by working in there, to take the stronger parts in flank. This operation should be assisted by every available gun that can be brought to bear upon the enemy's infantry and cavalry.

Constant pressure upon the rear of the skirmishing line must be maintained by pushing on companies after companies, till at last its very strength impels it forward. The exact moment for doing so to be decided *by a senior officer actually* on the spot; one in the rear cannot tell when *the proper moment for such* a charge has arrived; one must be in actual contact with the enemy, and in the midst of the men about to charge, enabling you to feel the pulse of both sides as it were, in order to know and appreciate clearly when the moment has arrived for rushing upon the enemy. At the distance of about 150 or 200 yards in rear of it there should be a line of supports, to be kept always as strong as the skirmishing line, so whenever the latter is reinforced from the 1st line of supports, this in its turn must be reinforced or replaced in its entirety from the supporting lines in rear. When the whole of the 1st line has been blended in the skirmishing line, the 2nd line should draw up to within about 300 or 400 yards of it, keeping as much under cover as possible.

One great thing for all officers to see to in advances is that, no matter who drops, no one falls out to help him. The duty of picking up the wounded must be performed by the ambulance corps, aided by the bandsmen of regiments, who for this purpose should follow close in the track of the attacking lines. At any rate, the wounded must take their chance till the operation is finished; they should remember that the wounded of those who win are generally well looked after, whereas those of the vanquished side generally fare badly. As every man who falls out to look after the wounded reduces the chances of success, it is especially their interest to prevent men from doing so.

4th. *In Square to resist Cavalry.*—Such should only be formed when absolutely necessary. C.O.s must remember that a battalion square is a mark for every description of fire. In forming them, advantage should be taken of any favourable ground. If there is an obstacle, such as a small hedge or ditch, or a rail fence, it is better to form at about twenty yards' distance from it than to hug it closely.

All reasoning soldiers know that a single man on foot is better than a single mounted man, both being armed alike; indeed, it is rather a matter of doubt in the writer's mind, if a man on foot with a long stout stick could not baffle the best of dragoons on horseback, armed only with a sword. But there is always an 'if' in such questions; a large proportion of men on foot get flurried when they see a man on horseback charging down upon them with a bright sabre flashing in the sun, and the moral effect of a large number of such men charging in a formed body is much greater in proportion; the very noise of the horses galloping has a terrifying effect that frequently goes home to the heart of infantry, particularly if it has been at all shaken previously by artillery fire. The writer has witnessed more than once the dread entertained by good infantry for cavalry when in action. This must be familiar to all officers who have commanded skirmishers or their supports when advancing under fire. Let there be the slightest suspicion of cavalry charging, let but a few horsemen show themselves in the vicinity, and I have always found it have a most *unsteadying effect* upon the men.

The issue of every fight depends upon the behaviour of the infantry, and their conduct depends upon the company's officers, who are of all others the most important body of men in an army.

In that final moment of actual conflict, the result is in their hands. Drawn from the gentry of England, their courage has never been impugned, not even by the most radical of newspapers. Hence, in a great measure, our unvarying success in infantry and cavalry charges. It is at such times that a man's mettle is shown. The company officers have a busy time of it in action. They must be careful that their men do not waste their ammunition. This is now all the more necessary, from being armed with breech-loaders.

Immediately after charges it is most essential that they should re-form their men at once, and not permit them to go too far in their broken state. Cavalry should take up the pursuit. This is all the more necessary in counter-charges made with a defensive object, when the men should be led back to their original position as soon as possible.

Our regular battalions are henceforth to be over 1,000 strong when on war establishment; our system of drill is not applicable to those of more than 500, or, at most, 600 bayonets; for, apart from the fact that it is nearly a physical impossibility for one man's voice to command so many in the bustle of action, the rigidity and consequent slowness of all movements effected by our system of drill when applied to battalions of such strength renders it inapplicable to warfare under its newly assumed phase. The one great idea of commanding officers has been, hitherto, '*to keep their men well in hand*,' and that all companies should move off at the same moment by word of command from the colonel.

Our cavalry drill has always been in advance of that laid down for our infantry in this respect, inasmuch as it was left to the captains commanding troops and squadrons to place their men in the new position or formation they had been ordered to take up. This rigidity of movement looks very pretty in Hyde Park, but is unsuited for war: it was copied from the Prussians, who used it, as we did also, to excellent purpose where the effective and destructive range of musketry did not extend beyond what a soldier could run over in charging, and when not more than one, or at most two rounds, could be delivered by the defenders during the time occupied by such a charge. I think we shall again have to follow that nation in their system of tactics, adapting them to the peculiarities of our soldiery, but letting our men '*go*,' instead of always endeavouring to keep them '*in hand*.'

It used to be said of us that we were the only nation that could fight in a two-deep line. In such a formation we charged and overthrew Napoleon's finest troops. We have now to go a step farther, and to teach our men to *charge with the bayonet in* skirmishing order, trusting that the same pluck *which enabled us during* many consecutive years to annihilate by our line charges the best European troops, may enable us henceforth to do the same by means of our superior skill as marksmen, and by the irresistible dash of our skirmishers.

EMPLOYMENT OF ARTILLERY IN ACTION.—The introduction of rifled guns into the service has increased the range of artillery; but as the limit of vision still remains unchanged, this alteration has not increased the distance at which artillery can be used effectively to the extent that is supposed by many. To open fire beyond the limit at which the effect of your fire can be ascertained by good sight aided by telescopes, is merely to waste valuable ammunition; that limit is about 2,500 yards. From the experience of recent wars we learn that fire cannot be maintained from a battery exposed to infantry fire, so, unless screened from view by either parapets or the natural configuration of the ground, guns should not be placed within 900 yards of the enemy's infantry; if during the course of an action the enemy's infantry succeeds in reaching much within that distance of a battery, the gunners of which are not screened from view, it should retire beyond that range. Formerly, when guns were taken up to within a few hundred yards of the enemy's position, it was easy to lay them with precision for such short distances; but to do so at long ranges is a different matter, requiring time and very great nicety, as the exact distance has to be ascertained; therefore the fewer the movements executed by a battery the better; and the longer it will be in a position to inflict damage upon the enemy, for it is a recognised axiom that guns are useless when limbered up. It is consequently very important that good positions should be found for the artillery before the action begins, and that, when placed there, it should not be moved unless the enemy succeeds in bringing a musketry fire to bear upon it, or that, in being driven back, he retreats beyond its range. A few hundred yards either backwards or forwards makes but little difference in the effectiveness of fire from rifled guns. In selecting the position for a battery, seek to obtain a good command of the enemy's position, and where your own guns, waggons, &c., shall be well screened from his view; it is also desirable that the ground in your immediate front should be as unfavourable as possible to the enemy's artillery fire; for this reason soft cultivated land, marshes, precipices, or any steep escarpments, such as the banks of a canal or the side of a railway cutting immediately in front of the guns, is a great protection to them.

If the fire of infantry and artillery is to be effective at one and the same moment, commanding positions must be selected for the latter, from whence its rifled guns can play with accuracy and safety over the heads of the infantry moving below them.

As the action of artillery will henceforth be much more independent than it has been hitherto, it is more essential than ever that each battery or collection of batteries should have its own escort of cavalry or infantry—according to the ground where it is posted—to protect it. Except from the attack of infantry skirmishers, its front may be considered secure by its own fire, but its flanks are especially weak. The escort should therefore take up its position there, keeping well to the rear under cover. When the battery moves, its escort moves with it. If there is, near a battery, any cover in which the enemy's skirmishers could lodge themselves, it should be occupied by the escort. When obliged to change position, batteries should move as rapidly as possible: H.A. having its gun detachments mounted, can do so at a gallop when the ground permits, but at present our field batteries cannot go to any considerable distance faster than a walk, as only four men of each gun detachment are carried on the gun and limber. It is hoped that this may soon be changed, and that the off-horses of every gun team may carry a gunner, as was always the practice in the Bengal H.A. If this were done, field batteries might change positions in action at as fast a pace as the ground would permit. The quicker such changes are executed, the shorter is the time that the guns are useless.

At every phase of an engagement, the action of one particular arm of the service is, for the time, of most importance. At one moment it may be the enemy's cavalry, at another his artillery, and so on; but, whichever it may be that you have to dread most at the time, upon it your artillery fire should be concentrated. Before infantry were armed as at present, artillery in action was chiefly used by both sides in counter-battering, as it was supposed that if the enemy's artillery fire could be reduced and kept under, your infantry might advance in comparative safety to try its strength against that opposed to it. It is the infantry fire which is now to be dreaded most; so, as a general rule, it is upon it that artillery fire should be brought to bear most. This rule applies with greater strictness to offensive than defensive operations: in the former, the one great object is to annihilate and strike terror into the infantry defending a position by the loss inflicted upon it by your guns: in the latter, as the infantry may be safely left to take care of itself, and may be relied upon to drive back from its front all assailants, the bulk of your guns may be most profitably employed in pounding the enemy's artillery, so as to distract its fire from your infantry. Of course, if it is found that the enemy's columns are pressing on, and that he is massing troops for an advance, his attacking forces, assuming then the most prominent importance, should receive most attention from your artillery, as already laid down.

Artillery in action should always have the greatest possible front.

When guns are charged by cavalry, the gunners should stand to their guns to the last moment. When the cavalry are close, they must, according to circumstances, take refuge, lying down close outside of infantry squares or under their guns. It is a pity that all men of gun detachments have not breech-loading pistols; with them they might easily hold their own against cavalry from under their guns, the limbers having retreated for protection to the reserves, or second line.

In fine, the efficient employment of artillery in action depends upon that employment being *àpropos*. Six H.A. guns opening fire at exactly the proper moment will be of greater use, and have a greater effect upon the final result, than twice that number merely pounding away without any special object.

Gassendi says, in writing on artillery in action, "Les derniers coups sont les plus décisifs, ils feront votre salut peut-être, mais votre gloire surement."

STREET FIGHTING.—To be considered under two heads: 1st, fighting to obtain complete possession of a city or town into which you have forced your way, but where the defenders are still prepared to resist; 2ndly, the suppression of insurrection in a city which you hold with a garrison, but where the population is hostile.

1st. It is of great importance to obtain a plan, no matter how rough, showing the streets and the position of the public buildings, and of all squares, or other open spaces where large numbers of the enemy can assemble. If possible, find out from spies where his main positions are, and the quarter of the town, or the buildings that he has especially fortified as an interior keep, &c.

To open out one or more roads to this central position, or to some commanding point in its immediate vicinity, so as, if possible, to cut his forces into two or several parts, and prevent them from assisting one another, is the first great object to be attained.

Having selected the route or routes by which you mean to force your way, begin by seizing the houses on both sides. When a column finds its progress barred by barricades and the fire from the adjacent houses, every endeavour must be made to turn such positions, by using by-lanes, breaking through houses, and working a passage from one to the other, until you obtain possession of some point in their rear. The defence soon slackens when the retreat of the defenders is seriously threatened. As a rule, it is better to allow them a 'bolt-hole,' for if all retreat is cut off from them, it is apt to make them desperate, and a few determined men who have made up their minds to die may inflict immense loss upon the assailants in street warfare. If you do happen to cut parties off, open a parley with them at once with a view to their immediate surrender: give them any reasonable terms, sooner than fight them for possession of the houses they occupy.

If you are advancing in more than one column, open out lateral communication one with the other, wherever it is practicable to do so.

With the head of each column there should be a party of engineers, provided with hatchets, crowbars, and powder bags. A rifle bullet fired into a lock will generally destroy it. If the roofs are flat or double, it is essential to make a way along them, when the houses are held by the enemy: if the roofs cannot be used, openings must be made with crowbars, from one house to the other in the uppermost story. In this manner a passage may be opened into the centre of a city without great loss, whereas if the columns are pushed through the streets without obtaining possession of the houses on each side, the losses are sure to be very great, and the operation has a demoralising effect upon the men.

2ndly. To suppress insurrection in a town in which you are garrisoned, it is essential to occupy such positions within it as will enable you to isolate the quarter which is the main stronghold of the insurgents. Having done so, endeavour to divide it up into sections, isolating them one from the other as much as possible. Never attack barricades or positions in cities with brute force; but, by seizing upon houses or posts in their rear, or on their flanks, force the enemy to become the assailant. Much may in some cases be done towards bringing a hostile population to reason, by cutting off their supply of provisions and water.

Defence of Posts.—The object to be attained by an officer directed to defend any village, house, garden, &c., is first to render it in a rough manner as like in outline as possible to a regular fortification, the guiding principles of which, it is taken for granted, all know. It is assumed that the garrison is sufficient for the extent to be defended; in other words, about one file to every running yard of hedge, wall, &c., that represents the parapet. If the post is of any extent, there should be about one-fourth more as a reserve.

When guns are used in the defence of redoubts or fortified villages, they should be kept out of sight until the moment arrives for them to pitch into the enemy's assaulting columns. They should not engage artillery except under very peculiar circumstances, and, when so used, they should be withdrawn as soon as the enemy's artillery begins to overpower them. For these reasons, they should be served *en barbette* instead of through embrasures, about 20 or 30 filled sandbags being kept with each gun, to form a rough temporary protection for the gunners from the enemy's marksmen.

An officer desired to occupy and defend any such place should examine it before occupying it with his men, and will determine upon the exterior line that he will defend. He will then distribute his men along it as they are to stand, giving each company or section a certain space to prepare for defence. The place should be searched for tools if there is any scarcity of them.

The first thing to be done by each officer in command of such parties is to obtain cover for his men whilst he enables them to deliver their fire with effect; secondly, to strengthen his portion of the work, so as to prevent an enemy from entering it; thirdly, to render the approach to it as difficult as possible, and to clear away all cover from his immediate front. The reserve in the meantime to open out communications, and strengthen any church or other central building which has been selected as a citadel. To it, or some other building near it, all the wounded are to be carried during the action. Household furniture is of great value in forming breastworks. Boxes, barrels, and bags filled with earth make good parapets, and assist greatly in making loopholes. The glass in all windows of houses to be defended to be broken. If the roof is of thatch, it should be removed. The garrison must prepare for a heavy artillery fire being brought to bear upon it; but if time admit of the cover afforded by the existing walls and hedges being improved, it ought to be well protected. The reserve should be as much as possible screened from fire, so that it may be ready to charge the enemy in any direction where he may have forced an entrance. Everything will depend upon the officers. If they remain cool and jolly, their men will follow suit. The slightest sign of any one being ready to look over their shoulder to the rear is fatal. An officer in command who abandons the defence of a post until at least two-thirds of his garrison are *hors de combat* should be shot. Let every one remember Hougomont.

Outposts.—The most arduous, while at the same time the most important, duties that devolve upon soldiers on service, are those of outposts. C.O.s. should lay great stress upon that importance in their conversations with those serving under them, and they should take every opportunity of instructing both officers and men in such duties. All concerned should feel that the safety of the army and the honour of the country depend upon their vigilance and activity. The F.O. of the day should be most strict in enforcing the rules of the service as regards outposts. With an army their duty is to protect it from surprise; with detachments to do so also, and to enable them to retreat in time without being cut off. They are also used for the purpose of gaining and transmitting intelligence of the enemy's position and movements.

They should act as the feelers of an army, guarding it from every danger, and keeping it constantly informed of everything that can add to its safety or assist its movements. They are also often employed as a screen to the movements of the main army in their rear, and to prevent any intelligence of those movements from coming to the knowledge of the enemy.

The army is protected from surprise by detachments, called in our army outlying piquets posted in advance, on the flanks, and when necessary in the rear of it. Information of the enemy's position, &c., is obtained by means of patrols varying in strength according to circumstances, and by means of mounted scouts pushed forward by these patrols in advance of them.

The hand with the fingers well opened describes the outpost system, the nails being the outlying piquets, the middle joints of the fingers the supports, the knuckles the reserve, and the wrist the troops or camp to be protected from surprise.

Like advanced guards, all outposts should be as far in advance of the force they are thrown out from as they can be with safety; that is, without exposing them to be cut off or overpowered before assistance can reach them.

The distance at which cavalry outposts should act in front of the army which they protect must depend upon the position and nearness of the enemy; but if possible, and especially in a friendly country, they should be many miles in advance of the main body. When in contact with the outposts of the enemy, they should watch, feel, and never quit them. Clever outpost officers will nearly always divine the movements of the enemy from the conduct of his advanced parties.

The outposts should form a continuous chain, and should considerably overlap on both flanks the line or lines of operation of the main army.

It is advisable that piquet duty should be done by whole battalions of infantry or regiments of cavalry; all their baggage, except their entrenching tools and a proportion of their reserve ammunition, remaining in rear with the main body. These units to be divided into two equal portions, one to be the reserve, the other to furnish the outlying piquets and their supports.

When infantry are used, there should be with every piquet one or two dragoons to be used for carrying information to the rear. All officers employed upon such duties should have a telescope, compass, watch, metallic pocket-book, and above all things a good map of the country. Indeed, all sergeants ought to be so provided.

If there is no superior officer in charge of the outposts, the officer commanding a corps sent out to cover a certain portion of the country will, in the absence of specific orders, decide on the positions the piquets are to occupy, covering his front while doing so by a line of skirmishers; and in the case of cavalry by a number of patrols sent on in advance to reconnoitre the neighbouring villages and discover the enemy's whereabouts. If after a battle, the outpost arrangements should be made generally in rear of the troops who are in actual contact with the enemy, who will retire slowly through the line of sentries, when the piquets have been established. The C.O.s of corps on outpost duty should communicate personally with the *corps on their flanks,* learning the positions occupied by their reserves, &c.,

communicating with them from time to time should any important information regarding the enemy's movements be obtained.

A battalion of infantry whilst so employed will therefore be distributed as follows: In reserve 4 companies, and on outlying piquet 4 companies; each of these latter 4 companies to be divided into two equal portions, one to act as support, the other divided into two or more piquets of about equal strength (of about from 30 to 40 men each); they again being divided into three equal parts, one furnishing the N.C.O. for the reliefs, patrols, &c., and the privates for patrolling; the other two furnishing 3 reliefs for the double sentries in advance, and for the single one over the arms.

A battalion would therefore cover from 2,000 to 3,000 yards, according as the country was close or open. As cavalry can watch a far greater extent than infantry, and by their power of patrolling and scouting to long distances in advance can more easily obtain information of the enemy's doings, a regiment of cavalry would cover about the same extent of front, it being remembered that cavalry are used in a more open country than that where infantry outposts are employed.

The distances these several parts into which a battalion is to be divided should be from one another must greatly depend upon the nature of the country and the arm of the service furnishing the outposts; but the arrangement must be of such a nature that under no circumstances whatever nor by any possibility shall it be feasible for an enemy to reach the main body until it has had ample time to turn out.

In some cases it may be advisable to have a couple of H.A. guns (their waggons being with the main body) with the reserve. The officers commanding these reserves will send out reconnoitring parties from it towards evening, and especially towards daybreak, to obtain information of the enemy's whereabouts. Any important news so obtained to be communicated at once to the general, the authority for its correctness being stated.

On ordinary ground when infantry is used, the reserve may be about 800 yards in advance of the main body, the supports about 400 yards in advance of them, the piquets about 300 or 400 beyond them, with double sentries thrown forward about the same distance: when cavalry is used, these distances may be doubled and in some instances trebled with safety.

In rear of all these will be the main body of the force detached to the front of the army to protect it, which whilst on the move will form its advanced guard. The outpost duties should be carried on by a larger force, with increased vigilance, and at a greater distance from the main body, when an army is merely halted for the night in some chance position of no strength, than when it occupies one carefully selected for defence.

An Officer Commanding a Company or Troop will march upon the positions to be occupied by the supports with all the precautions of an advanced guard, examining the country he passes over, and selecting positions for disputing the ground, in case of being driven back by the enemy. Previous to starting, he must ascertain that the men's pouches and water bottles are full, and that they have their rations for the day, or two days, according to the orders for the time being. Having decided upon the position for the support, he will then move forward his two piquets, sending an officer with each; he will in the first instance go forward himself with one of them and post it, indicating roughly where the other is to advance to, and subsequently correcting the position taken up by it, should he consider it necessary to do so.

No shouting or other noise should be permitted at outposts, nor should the men be allowed to straggle, or show themselves to the enemy. The strictest discipline to be maintained, and the inhabitants treated with every civility and consideration.

Outposts should always keep defiles, bridges, and causeways between them and the enemy. It may be necessary, however, sometimes to have vedettes or sentries thrown beyond them.

If a piquet occupies a wood, the sentries should be posted along its edges, whilst the piquet itself should be 100 or 200 yards behind them. If the orders are for piquets to hold their ground as long as possible in case of tack, they should in such positions advance, and make their stand along the line of sentries.

When a river is to be watched by a line of piquets, the important places to guard are bridges, fords, and where it forms re-entering angles towards the enemy, as crossings will seldom be attempted where it forms a salient angle towards him: localities where there are wooded islands dividing the river into several channels should also be carefully watched.

As soon as an officer commanding an outpost, or advanced piquet (whether of cavalry or infantry), arrives on his ground, he is to endeavour to make himself master of his situation, by carefully examining not only the space he actually occupies, but the heights within musket-shot, the roads and paths leading to or near the post, ascertaining their breadth and practicability for cavalry and cannon; to ensure a ready and constant communication with the adjoining posts and vedettes, in the day by signals, in the night by patrols. He is to examine the hollow ways that cover the approach of an enemy, and consider all the points from which he is most likely to be attacked. He will by these means be enabled to take measures to prevent surprise; and should he be attacked during the night, from the previous knowledge he has obtained of the ground he will at once form a just estimate of the nature of the attack, and make his arrangements for defence with promptitude and decision.

Sentries and Vedettes.—In selecting the line for the chain of sentries, care must be taken not to extend it too much—to post the men in the most advantageous situations for observing the roads and country in front, and to keep them as much concealed from the view of the enemy as the nature of their duty will admit. It is very desirable that

every elevated spot which overlooks the communications in the rear shall be taken within the chain of sentries; but if this cannot be effected without extending the sentries too far, a party must be sent to occupy the height during the day, and care must be taken to support and ensure the retreat of this party if attacked. Sentries must be so placed, moreover, as to secure one another from being cut off, and at such distances as to prevent any enemy from passing unperceived between them during the night. Sentries should never be posted near any copse or cover from which a sudden rush might be made upon them; but all woods, ravines, &c., in the neighbourhood of the post must be watched, and occasionally visited by patrols, to prevent the enemy from assembling a body of troops unobserved in the vicinity. The fewest possible number of sentries should be employed; with which object impracticable ground, such as ponds, marshes, and precipices, should be embraced in the line of sentries, so as to shorten the extent of front to be guarded.

Sentries and vedettes should always be double. The officers and N.C.O.s, with the piquets, should visit them frequently during the day, and between every relief during the night and foggy weather. This is all the more essential towards morning. If there is a house or church near the piquet, an intelligent man with a telescope should be posted on the top during daylight.

At night, sentries should be on low ground, keeping the high land between them and the enemy, so that any one passing over it should stand out against the sky, and so be easily seen.

In most countries, but few sentries are required by day. Bayonets should never be fixed by sentries during the day, or on bright moonlight nights: in thick weather, and on moonless nights, they should always be fixed. By day they should have in view those on both sides of them, and at night they must take it in turns to patrol to their right until they meet the next sentry there. However, in clear nights, the less motion there is the better. Smoking should be strictly forbidden to sentries, and they should not converse above a whisper. Sentries by night should be relieved every hour. It is most desirable to have piquets divided into four reliefs for night work, but there should never be less than three.

At night, when the officer or N.C. officer visits the sentries, he should patrol with one of them from 30 to 40 yards to the front, according to the nature of the ground. Sentries are frequently posted in positions which are of such difficult access, or at such a distance from the piquet, that it is advisable to detail a party with a N.C. officer of just sufficient strength to furnish the sentries. The line of sentries should be to the enemy an impenetrable veil, behind which one can move, where it is required, without the enemy being able to discover the movement, whilst at the same time they should be the eyes of the army, always peering forward to watch and report what the enemy is doing. Every road and byway should be carefully watched by them.

Both by day and by night sentries should only allow one person at a time to approach their post until they are satisfied that they are friends. If strangers by night, they must be forced to halt until the next relief comes round, when they should be taken before the officer commanding the nearest party in the rear, who will, if necessary, send them to the F.O. If by day, a signal to be made to the sentry at the piquet (or the connecting one, if the former should be far away). An officer from the piquet should at once proceed to the spot. No matter who the intruders may be—deserters, spies, or an officer with a flag of truce—the least possible conversation is to be held with them. It is a good plan to allow the line of sentries to be passed at only one point along the front occupied by the piquets of each regiment or brigade, such point to be where it is crossed by a main road. A sergeant's party should be posted there, to examine all who attempt to pass, and to see that no one does so unless duly authorised.

If it is a flag of truce, an officer remains with the bearers until an answer is received from head-quarters. He should not allow them to proceed more than a few yards inside the line of sentries; nor must he allow them to talk to others. He must be careful that advantage is not taken of the situation for an examination of our position. He will, therefore, detain them in such a place that they can only see well in the direction of their own camp. The usual custom is to conduct an officer, bearing a flag of truce, to some house or tent in or near camp, blindfolded. English officers are apt to neglect such precautions, but they are wrong to do so. If the conference is to be held at the advanced sentry's post, an officer will be sent from head-quarters to preside at it. It may perhaps only be a letter; in which case, unless an answer is immediately required to it, the officer commanding the piquet will give a receipt for it, when the bearer will return to his own lines without loss of time. If the bearer is to be conducted to any point within the line of piquets, he should be well blindfolded and conducted there by a circuitous route, not passing immediately by any of the piquets if they can be avoided.

In the case of deserters, spies, or others coming from the enemy's lines, the officers commanding piquets should be careful that no questions be put to them by their men. If questioned by many, they weary of answering, and become unwilling to give information subsequently when examined at head-quarters by those whose duty it is to do so.

They should be at once sent to the F.O. of the day, who will dispose of them according to the orders on the subject existing in the army at the time. Sentries should be instructed that they must at once give the alarm by firing at any body of the enemy approaching their posts, or the line of sentries from any point that may come under their view. They must continue to fire quickly as long as the enemy advances, and until they are driven in. They should retire as slowly as possible, one man being always loaded, as in skirmishing, and only falling back step by step, so as to avoid being taken prisoners. In the event of an accident happening, to prevent their rifles going off, they must shout as loudly as they can, and if by day wave their caps to attract attention. Should a man desert from the piquet or be taken prisoner, it must be at once reported to the F.O. and to the piquets on your right and left.

Officers should carefully select their men for sentry duty, putting the best men on the most exposed and important posts. In every company there are many near-sighted men, who cannot safely be used as advanced sentries. They should be used for patrol duties, sentries over the arms, fatigue duties, &c.

Flanks to be Protected.—The flanks of a line of piquet sentries should be thrown a little back, and if not protected by the nature of the country, a detached party under the command of an officer should be posted in the most favourable position to prevent the flank from being turned.

Connecting Sentries.—Communication should be kept up by means of single sentries between the front line of sentries and the piquets, also between the piquets, the supports, and the reserve.

The same men should always be mounted on the same posts, when it comes to their turn to go more than once on sentry.

No man to go beyond 20 yards from his piquet without leave.

Single sentries must always be posted over the arms of the piquets, supports, and reserves, the arms being placed so that the sun should not shine on them.

For these and the connecting sentries it is most useful to have a rail or a long rod, supported at each end by a forked stick, pointing in the direction of the sentry in advance, upon whom their attention is most particularly to be directed.

Officers should study the general habits and customs of the enemy with reference to their outposts, their hours of *réveillé*, their practice in relieving outposts, sentries, &c.

By day, the glittering of the sun upon the arms of troops in motion indicates the direction of the march. If the rays are perpendicular, they are moving directly towards you: if slanting from left to right, downwards, they are moving towards your right, and *vice versâ.* If the rays are intermittent and varied, they are moving away from you.

When facing the sun objects seem nearer than when the back is to it. The neighing of horses, barking of dogs, rumbling of carriages, or clouds of dust, are indications of movements that must not be neglected.

Officers commanding piquets in close proximity to those of the enemy must be careful to avoid coming into useless collision with them. Sentries firing at one another, and attempts to carry off detached posts, sentries, &c.,

unless with some special object in view, are to be avoided, as they lead to nothing, give rise to reprisals, and tend to the general annoyance of all supports, reserves, and even the main body. At the same time, all attempts on the part of the enemy's piquets or patrols to approach our sentries must be stopped. It is wonderful how soon troops opposed to one another learn mutual respect and forbearance, and come to a sort of tacit understanding upon such matters.

An Officer to strengthen his Post.—An officer ought to strengthen his post, when practicable, by constructing abbatis, breastworks, &c.; where the defence of a bridge or ford is entrusted to him, he ought never to omit throwing up something of the kind to protect his men, and impede the advance of the enemy. An officer ought not, however, without permission, to block up a main road with other materials than such as are easily removed. A tree felled with judgment, brushwood cut to a certain distance, pointed stakes about breast-high placed on the point most assailable by the enemy, may be attended with the greatest advantages, and can be effected with the common hatchets or billhooks with which the soldiers are provided for the purpose of cutting firewood.

He should ask himself what he would do, if attacked from different directions. His plans should be prepared as soon as he has examined his position. Though by nature he be slow of thought, he has nothing to fear provided he has made up his mind beforehand as to what he will do when attacked.

Nothing checks the ardour of troops more than an unexpected obstacle within a moderate distance of the place attacked; this must not be overlooked by an officer who defends, and no impediment he can throw in the enemy's way, at that distance from his post, must be deemed unworthy his attention.

He should open up good communications to the rear, by which to retire in case of need. He must remember that, in case of attack, the longer he disputes every inch of ground, and the more he forces the enemy to deploy in order to drive him in, the more efficiently is he performing his duty.

An Outpost must not shut itself up without Orders.—An outpost ought not to shut itself up in a house, or an enclosure, with the intention of defending itself to the last extremity, unless particularly ordered to do so, or that circumstances may render it necessary at the moment, for the preservation of the party, in the expectation of support.

Under what Circumstances a Piquet should Retire.—A piquet may with safety defend its front as long as its flanks are not attacked; but as soon as the enemy attempts to surround the post, the piquet must begin to retire.

If the piquet on either flank is forced back, you must throw back your line of sentries in that direction, and watch for an opportunity of falling *on the enemy's flank as* he advances.

Precautions to be taken when Fires are allowed.—No fire should ever be lit by piquets; when a support is permitted to have a fire, it should always be as much as possible concealed from observation; and the alarm post, in the event of an attack at night, should invariably be fixed at a short distance in the rear of the fire, so as to prevent the support from being seen, when drawn up, and to compel the enemy to expose himself while passing the fire, should he advance. All cooking for the piquets must be done with the supports or reserves.

The officers should take it by turns to sleep for an hour or two; but one must always be on the alert.

In bad weather it is advisable that piquets should have *tentes d'abri*, care being taken that they are placed in positions where they cannot be seen from the front.

Outposts to be under Arms an Hour before Daylight.—Outposts will get under arms in the morning an hour before daylight; and if everything appears quiet in front, the officer will, as soon as he can discern objects distinctly, proceed to occupy the same posts that he held the day before; but he must previously send forward patrols to feel his way, and should any change be remarked in the enemy's posts or position, he will report it immediately to the field officer of the day.

When advanced Piquets should be relieved.—As attacks are most commonly made about daybreak, a desirable accession of force will be always obtained by relieving the piquets at that hour.

Arrival of the Relief.—When the new piquet has arrived, the officer commanding it will accompany the officer of the old piquet along the chain of posts, and this officer will point out the situation and strength of all the enemy's posts, and afford every other information in his power to the relieving officer.

Duty of the Officer of the old Piquet.—When the sentries are relieved, and the weather is sufficiently clear to ascertain that there is no indication of an attack, the officer who has been relieved will forward a written report to the field officer of the day, fall back upon the reserve piquet, and march to camp in the same order as when he advanced; but if the advanced piquets should be attacked before he arrives in camp, he will consider it his duty to face about instantly, and march to their support.

When Piquets are Attacked.—When piquets are attacked, the same rule will be observed as in all other skirmishing, and the detached officers' parties will not run in on the main body, but support the skirmishers; and when compelled to retire, they will, if possible, retreat on the flank of the main body, and thereby afford mutual support to each other. If forced back at night they should keep up a heavy fire so as to alarm those in rear.

The principal Object of Piquets in case of Attack.—In the event of an attack, the commander of a piquet must ever bear in mind that the great object of his efforts is to gain sufficient time to enable the main body in his rear to get under arms and prepare for action. The points he is to dispute in falling back having been previously selected, few cases can occur in which it will be impossible to attain that end, without endangering the safety of his piquet; but even in an extreme case, he must remember that it is his duty to sacrifice himself, rather than be driven in upon the main body, before it has had time to form.

Outposts pay no Compliments.—Outposts pay no compliments, but when approached by a general officer, the field officer of the day, or by any armed party, they will fall in and stand to their arms.

Sentries on outpost duty pay no compliments.

PATROLLING.—One of the most necessary and effectual methods of preventing surprise and of gaining information remains to be noticed, viz., patrolling, without which, however active and alert the sentries, the service of the outpost never can be properly done. The mode of conducting these patrols, their strength, and the distance to which they may be sent, are all necessarily dependent on the ever-varying local circumstances in which piquets may be placed; but it may be laid down as a good general rule, that, when near the enemy, a patrol should be sent out once between every relief during the night.

Vigilance, Silence, and Circumspection indispensable in Patrolling.—Vigilance, silence, and circumspection, must be strictly enjoined upon all patrols; no noise must on any account be made, and when anything is to be communicated, it should be done in a whisper.

It is not possible to lay down exact rules for conducting patrols in every case that may occur on service, but one or two of the most usual modes of carrying on this important duty may be briefly adverted to.

Patrolling in Front of the Line of Sentries.—The patrol, on leaving the piquet, should when practicable communicate in the first instance with the next post upon the right (or left), and patrol cautiously along the whole front of the line of sentries, just near enough to see them, and communicating with the next post upon the left (or right), return again to the piquet by the rear of the chain. The sentries must not be thrown off their guard by the frequent appearance of these patrols, but be taught to expect an enemy in all who approach them: some preconcerted signal, or interchange of countersign in a low tone, should be used, and which should be changed at every relief.

Patrolling when the Enemy's Posts are Distant.—Patrols must also be sent along the roads in the direction of the enemy's posts, to such distance as may be deemed expedient. These patrols must be preceded by feelers, quick intelligent men selected for that duty, whom no sound will escape, and whose experienced ears will detect the approach of danger long before it reaches them. A patrol must, above all things, avoid unnecessary firing, or, in other words, false alarms: on hearing the approach of footsteps the feelers should instantly fall back to the patrol; and should the sounds indicate the advance of a larger body than a patrol, one or two men should be sent back with all haste to inform the officer of the piquet, who will make immediate preparations for defence. The patrol will retire steadily and unobserved, if possible, upon the piquet; but if perceived and taken by the enemy, an incessant fire must be maintained, in order to apprise the camp that the enemy is coming on in force. Although it may safely be inferred, that if the piquets know their duty, and are judiciously drawn up for the defence of the roads, it will be extremely difficult for an enemy, however strong, having failed in his plan for taking the advanced posts by surprise, to make head, under all the disadvantages of a night attack, against men who know the ground, and whose plans have been previously concerted for disputing those points in their line of retreat, and where the disparity of numbers must, in the dark, be in a great measure neutralised.

Patrol to avoid exchanging Shots with the Enemy.—In falling in with an enemy's patrol in advance of the chain of sentries, it will always be most prudent to retire at once without exchanging shots, which can only tend to harass and disturb the troops in their rear.

A strong Patrol to be sent out just before Daylight.—A strong patrol will always be sent some distance on towards the enemy's posts just before daylight, and this patrol, above all others, must proceed with redoubled caution for fear of falling in with the enemy's columns, waiting for daylight to attack. Their object is to keep the enemy's reconnoitring patrols at a distance, or to dislodge or capture some of his advance parties, and to learn what is going on behind them. These patrols should be furnished from the reserves or main body.

Reconnaissances.—The most reliable method of obtaining information as to the enemy's movements is by reconnaissances, which may be divided into four classes.

1st. Reconnaissances in force.

2nd. Those made by a detachment of arms of sufficient strength to protect themselves and secure their retreat.

3rd. Those made by staff officers, accompanied by small cavalry detachments.

4th. Those made continually by individual officers, or by scouts from the outposts.

The first is an affair for the C. in C., and must never be undertaken except by his special orders. It has frequently been adopted by generals previous to an action, for the purpose of ascertaining the enemy's strength and dispositions.

THE SECOND CLASS OF RECONNAISSANCES is generally made by a detachment of all arms; its object is to obtain information by approaching the enemy's position, taking a few stray prisoners, engaging, perhaps, in a very partial skirmish, and then retiring. The extent to which it should engage must depend upon its strength, and its strength upon the distance to which it has been sent away from support.

3RD CLASS.—There are no occasions in life when officers have such opportunities for displaying coolness and intrepid bravery, joined to extreme caution, as when sent out with a troop of cavalry or mounted infantry to reconnoitre. This is a duty that cavalry officers, above all, should strive to make themselves perfect in; it is much to be regretted that so few of them in our army can survey, or even put on paper the roughest sketch of the roads and ground they pass over. The consequence is, that staff officers have generally to take charge of the reconnoitring parties. Their object is to examine certain districts of country, and report upon its roads, rivers, general features, and resources; sometimes to find out the enemy's whereabouts, when they come under the head of patrols. It is taken for granted that the officer sent on such duty knows as much of the country as it is possible to do from maps and plans; that its principal roads, mountains, forests, villages, rivers, and the bridges over them, are familiar to him by name. In carrying out his reconnaissance, he will take all the same precautions as indicated for a patrol; when within reach of the enemy's patrols, he will march as much as possible along by-roads, and under no circumstances must he ever take up his quarters for the night in a village. If the weather is bad, he may avail himself of large open barns to shelter his men in. He should be most careful to spare his men and horses all unnecessary fatigue. Whilst far from the enemy, he may unsaddle all horses except those of his guard of 3 or 6 men. As he may have at any time to depend upon the endurance and speed of his horses, he should watch their condition, wants, &c., carefully. If, before starting, the exact positions of all neighbouring villages, churches, hills, and prominent features have been determined, he can have but little difficulty in fixing his position from all the commanding points on his line of route, as described in article on Surveying. The art of conducting such a reconnaissance is intimately connected, in all its details, with surveying, so that the article on that subject should be carefully studied. Reconnoitring parties of this nature will be sent on all the roads that can be made available for the advance of the army; they should consist entirely of mounted men, from 10 to 50 in number, depending upon how many days the party is to be absent, the nature of the country, and the proximity of the enemy. The best possible guides should be obtained before starting (for whom horses must be provided); they should be well treated, and paid liberally by the officer in command, who for this purpose must be prepared with money (to be subsequently recovered upon travelling bills).

In reporting upon a road, or in the examination of a country for military purposes, the following points should be especially noted:

Cities and Villages.—How situated, their population, commerce, and water supply. Are the inhabitants chiefly of the agricultural or of the manufacturing classes. Have any large supplies of food been lately collected in them. The general nature of their buildings, the number of their houses, &c. State their resources, in provisions, live stock, transport animals, waggons, and the names of those upon whom requisitions can be most effectively made; the names of the local authorities; the dates when markets are held; is there a post-office; the dates and hours when the mails arrive; is there a line of telegraph from it; if not, what is the nearest point at which a telegraph wire passes; how many telegraph operators live there; what are the facilities for baking, &c. The accommodation they can afford in time of war for troops to be stationed there for a few weeks, can best be arrived at by dividing the houses into classes, and by visiting one house of each class, estimate the number it could accommodate, and so arrive at a fair estimate of the accommodation afforded by the whole place.

"Accommodation" implies the occupation of the town, village, or house for a period of some weeks in time of war; it should, therefore, be stated what is the *maximum* number of men who can be accommodated consistently with good sanitary arrangements.

The following is a rough method for calculating the number of men who can be accommodated in a room; it will generally be found sufficiently accurate for practical purposes:

For rooms 15 ft. wide or under, one man to every yd. in length.

For rooms over 15 ft. in width, but under 25 ft., two men for every yd. of length.

For rooms 25 ft. wide, three men for every yd. of length.

A certain number of rooms (usually those on the upper story) must be left for the inhabitants, and provision must be made for cooking.

If any calculation be made, based upon the actual number of inhabitants, it must be borne in mind that the houses of country gentlemen or large farmers will usually afford proportionately a much larger amount of accommodation than the houses of the poorer classes.

As regards horse accommodation, when stalls exist, the number of stalls may be taken to represent the number of horses which can be accommodated. In the case of barns or large outhouses, about 5 ft. of their length should be allotted to each horse.

Roads.—Their general width, whether raised or sunken, macadamised, or of sand or clay. (If not regularly paved or macadamised, it may be taken as a rule that roads passing over soil that retains water are bad, particularly if enclosed by walls or banks. Those passing over coarse gravel, sand, or rock are generally good.) If in good order, enclosed by walls, hedges, banks, or ditches; can troops of all arms or baggage get freely on and off them to the fields at either side; the nature of the soil; cultivated with what crops; general character of the country; whether open or wooded; the fences, whether hedges, ditches, or of stone or wood; what rivers or streams cross them, and the nature of the bridges over them; of what material, of how many arches or spans, if safe for field or heavy guns. If the rivers are passed by fords; their character and depths; the ascents and descents and their slope. Roads that join or cross; from where to where; and the distances; towns and villages; can they be avoided by marching round them; what other paths are there to the right and left running in the same direction that can be made available for troops; their nature, &c. If portions are out of repair, whether the material is at hand for repairing it. The distances between all towns and villages to be noted in English miles, also the time taken to march at a walk.

Railroads.—Their gauge, whether double or single line of rail; what is the easiest method of destroying the line; general description of bridges, of what material, and their length, how to destroy them. The stations, whether large or small; the length and breadth of platforms, and what facilities exist for enlarging them and constructing others; whether there are sidings, and means for loading and unloading cattle. The means of providing the engines with water, and whether such means can be destroyed. The number of telegraph wires, and places where the batteries are kept. Whether there are many large tunnels, cuttings, or embankments, and their exact positions. Nature of the country passed through, &c., as described in previous paragraph.

Rivers, Streams, and Canals.—Whence they rise and their general direction. Their breadth, depth, nature of their bottoms, banks, and beds; current, and the effect of the seasons on all these points. The quality of their water. Are they navigable; between what points; nature of boats and their sizes; the number that can be collected at any one place. The position of ferries; number and nature of boats used; number of men, horses, &c., that each can take at a trip; breadth of river at such points. Positions of bridges; their length, breadth, and construction; are they passable by artillery; best method of destroying them; what materials are at hand to repair them if destroyed. The towns or villages on the banks or close by. Islands: their position, size, wooded or cultivated. Mills and mill-races. The number and size of locks in canals. If easily destroyed, and the best plans for doing so, and how fed with water; nature and condition of their towing paths, &c. In examining rivers note down the height of old watermarks above their existing level.

Fords.—Their exact position; their length and breadth; nature of their bottoms, whether sand, clay, rock, or gravel; do quicksands exist in their vicinity, and do they remain stationary, or do they sometimes form in the ford itself. Describe the roads and approaches to the ford; the velocity of the water, whether passable at all seasons; if not, at what time of year; general configuration of the ground on both banks; height of both above river; best position to be taken up to defend them; easiest means of destroying them; what houses or villages are near them. The depth for cavalry should not be more than 4 ft. 4 in.; for infantry, 3 ft. or 3 ft. 6 in., according to the strength of the current, and 2 ft. 6 in. for guns and ammunition waggons. Place no confidence in the reports of the people regarding the non-existence of fords. It is very common to find fords about which the inhabitants know nothing. Always examine the fords by crossing them yourself several times backwards and forwards. They are generally to be found above or below sharp bends, and they almost always run diagonally across the river. Those with bottoms of coarse gravel are the best. In seeking for a ford, the easiest plan is to ascend or descend the river in a small boat provided with a short lead-line and sounding pole. It is difficult to render them impassable, but large stones rolled into them, farm-harrows with the spikes upwards, ploughs, planks with long spikes driven into them, trees felled and well staked down, a ditch dug across it, &c., will retard the passage of an enemy for some time. It may sometimes be necessary to use fascines to render fords practicable. In India, where quicksands are common, the fascines are sunk by means of stones.

Mountains.—For military purposes a knowledge of the roads, passes, and paths over mountains is all that is required. Are they wooded, cultivated, rocky, or covered with heath.

Woods.—Whether troops can march through or only along the roads; if the latter, the reason. General description of the trees; are there many open spaces; if so, their usual extent. The roads and rivers to be carefully examined; their direction and condition. The necessity and facilities for opening new roads. Can these woods or forests be avoided altogether by following other routes; if so, describe them. The nature of the country in the vicinity, particularly where main roads go into and come out from such forests. There is no underwood in beech woods.

Plains and Heaths.—General character, whether cultivated, sandy, or swampy; if suited for large camps; supply of wood and water; nature of roads; the rivers, ravine, or other obstacles; the towns, villages, and houses, &c. All prominent land-marks, such as tall single trees, &c., to be marked carefully on the map.

Marshes, Lakes, Ponds.—Their cause, and how fed with water. If dry at some seasons; where roads cross them, or means of crossing afforded by boats, ferries, &c.; their general character, &c.

Farm-houses and Residences of the Gentry.—How are they generally built; of what material; their roofs; if generally well supplied with forage and provisions; if they generally have vaults under them. Their defensible capabilities; whether easily burnt.

General Considerations.—In all the various species of country to be inspected, the wants of an army must ever be borne in mind, and the quantity and quality of fuel reported upon.

4th. The Reconnaissances made daily and sometimes several times a day from outposts are conducted by the officers commanding piquets, or by those of the Q.M.G. department, who, taking out a corporal and a couple of men, or sometimes going alone, contrive to keep up to commanding points, near the enemy's position, for the purpose of seeing what he is about. They come under the head of patrols when made to any distance beyond the outlying sentries.

Scouting.—As long as the opposing forces are at a distance from one another, the front of each will be covered by a screen of cavalry or mounted infantry, or, what is still better, by both combined, under the command of one man. From this screen patrols will be despatched at all hours of the day and night to obtain information, and from these patrols scouting parties will be pushed on into the enemy's theatre of operations, worming themselves through his line of outposts or round his flanks. The officers and men for scouting duties should be selected as the sharpest and most intelligent from amongst the boldest riders in the corps. They should always go in pairs, having been given a place of rendezvous in rear; they should avoid the main roads as much as possible, although it is very necessary that they should strike in upon them now and then to ascertain what is taking place there, but as a rule they should keep to by-paths and farm tracks. In England they could do this easily without running great risks of compromising their safety, as the population would afford them every assistance; but it must never be forgotten that the most valuable information is very seldom to be obtained without danger, and it may often be necessary to lose many men as prisoners, in order to learn what the general requires to ascertain. Every one employed upon this duty should have in his possession a detail of the enemy's army, showing the regiments in each brigade and division, and affording particulars as to the dress and peculiar equipments of each battalion, &c. This information will soon enable an intelligent scout to ascertain what are the actual regiments the enemy's advanced force consists of in his immediate neighbourhood, and when collated from a large number of scouts acting along an extended front may enable the commander to estimate with tolerable accuracy the total force that an enemy is operating with. This duty is calculated to give scope for all those virtues of daring gallantry, bold riding, individual prowess, and self-reliance, that we pride ourselves upon possessing above all other nations. Upon the manner in which it is performed during war much must always depend. I would therefore urge upon the yeomanry the necessity of learning the use of maps so as to find their way through a country by means of maps on a small scale. All officers should be able to sketch ground, an art that is now to be learnt by attending a garrison instructor's class. See the articles on Patrols, Reconnaissance, Military Indications, Sketching Outposts, and Advanced Guards.

There is no excuse for mounted soldiers being made prisoners as long as their horses can gallop.

The first and most important duty of a mounted soldier is to take good care of his horse at all times.

It must be remembered that for small reconnoitring or scouting parties or patrols, to fight can lead to no military result; at the same time many a reconnoitring party has been saved by the boldness of its commander, who finding himself suddenly in presence of a superior force, makes a dash at it, engaging it boldly, and is thus enabled to get safely away under cover of the confusion occasioned to the enemy, who judged that he must be strong to do so. The timid or hesitating man would be lost under such circumstances.

MILITARY INDICATIONS.—As stated in the article on Outposts, officers should study attentively the customs of their enemy, their hours for dining, commencing their marches, &c., and the many indications of intended movements which an enemy may unwittingly afford. The collection of boats, heavy guns, scaling ladders, gabions, &c., at particular places, are indications that must always precede the passage of rivers, sieges, &c. If large magazines of stores or provisions are collected anywhere, it is clear that no retreat is contemplated; if, on the other hand, the parks of heavy, or spare guns, ammunition, engineer stores, &c., are being sent to the rear, a retreat is imminent, or being prepared for. The dust raised by columns is a fair guide in some countries as to the numbers and composition of the force marching. That raised by cavalry forms a high light cloud, by infantry a lower and dense one, by parks and baggage one more dense still. With a good glass you can sometimes learn from the manner in which troops move, and from their dress, whether they are regulars or militia, or if they belong to any special corps. The manner and bearings of the people in a hostile country is usually a fair indication of the public spirit and feeling; if they are gloomy and anxious, it is an indication of want of confidence in their cause, and that their troops are distant; whilst if they are excited and insolent, it shows that they rely upon assistance near at hand, and anticipate success from the number and efficiency of their army. In following a retreating army, much can be learnt from its trail; if the débris of arms, accoutrements, &c., lie about, there is a want of transport, and it is a sign of demoralisation according to the extent to which it is the case; large numbers of graves indicate the existence of disease in the enemy's army. The places where they halted for the night should be carefully examined; and all indications carefully noted. Did they bivouac or pitch tents; was their camp laid out with regularity; were their cooking places neatly made (in India much can be learnt from examining them, for when hurried the natives make but few, preferring to eat uncooked messes, to forego the requirements of their caste in such matters). Is their track strewn with dead, or dying transport animals?

have they plundered the inhabitants or burnt their crops or houses; have they effectually or only partially destroyed the bridges, &c.; the most insignificant circumstances afford sometimes whole pages of information to officers who, having studied the manners and customs of an enemy, know how to interpret them aright. Officers commanding small detached parties sent out on reconnoitring duties, may many times avoid falling into the hands of strong patrols or detachments, by learning their proximity from their track if crossed anywhere; the number and composition of such detachments may easily be estimated from it.

MARCHES.—To be considered under two heads. 1st, those undertaken at such a distance from the enemy that attack is out of the question, resembling, therefore, in all their arrangements those made during peace; and 2ndly, those made in an enemy's country, or where an enemy may be expected to attack at any moment.

There is one general principle which applies to every description of march, no matter when or where it may be undertaken, i.e., always march in as many columns as you can, and let each column march upon the largest possible front. The number of columns you can march by will generally be decided by the number of roads more or less parallel one to the other, leading in the required direction, remembering that when far away from an enemy you may extend your columns to the right and left greatly beyond the space you occupy in fighting, contracting your front the nearer you approach him, so that when within striking distance you do not cover more than your front of battle.

When far from the enemy all your arrangements for the march must be made with a view to the comfort of your troops, and to the convenience of supplying their daily wants, unless you have some object of primary importance, such as great rapidity of movement for purposes of concentration, in which case, of course, everything must give way to it.

The fitness of troops for the great final struggle, when they at last meet their enemy, must ever depend greatly upon the manner in which their marches have been arranged. Men overmarched, or whose health and comforts have not been duly attended to whilst on the march, can never be expected to go in at an enemy whose men have been well cared for by an able staff administration.

The season of the year and the climate must determine the hour of setting out; it should be an understood thing, however, that the men should have their breakfast before starting; when the marches are over 15 miles, the men should halt for dinner, and have an evening meal when they reach camp.

Unless there is some urgent necessity for speed, halt always one day in the week; in fact, the main features of the march depend upon the enemy's proximity, the nature of the country (which bears greatly upon the facilities for lateral communication between the columns), the relative strength of the opposing forces, and the objects in view.

The minor details to be attended to by officers commanding battalions and brigades, as well as those on the staff, are numerous. The following sketch is a general outline of them :—

That which is of the most vital importance is the physical condition of the men and horses. Both must be well fed during the march, for the wear and tear upon the system is much greater than when halted ; an extra allowance of meat and tea should always be given. See article on 'DIET.'

The men's stomachs being attended to, their feet come next, and are of equal importance ; good shoes and woollen socks are indispensable, the latter to be washed whenever there is a halt.

Captains of companies should impress upon their men the necessity for greasing their boots, which, while rendering them waterproof, also makes them soft ; they should be instructed to soap their stockings for the first few days' march, taking care to wash their feet and prick any blisters that may have risen, as soon as they encamp. It is a good plan to rub the feet with a decoction of salt and a little alum dissolved in warm water.

Men who suffer in the least from ingrowing nails must have their feet examined by the doctor. Whenever the force halts for a day, captains must examine their men's boots, and take immediate steps for supplying all wants in that respect. The old prejudice against drinking water on the march has been murdered by scientific discoveries : however, men should be discouraged from drinking large quantities at a time, and persuaded instead to drink a little frequently.

Whenever it is possible, have music to march to. If the band is broken up, the drums and bugles should play together as the French do. Nothing is more martial in sound, and the men march a hundred per cent. better to it than in silence. If you have nothing else, get your men to sing by companies. During long night marches in India at the beginning of the mutiny, I found that with singing we got on admirably, whilst, when we marched in silence, as men will do after the first half mile at night, they almost went to sleep, lagged behind, stumbled and fell. The moment a song was struck up the men stepped out briskly.

There are no occasions on which the discipline of a regiment becomes more conspicuous than upon the line of march, nor any on which the attention and vigilance of every officer in maintaining order and regularity are more especially requisite.

Officers of all ranks must be sensible of the importance of preserving the compact order of a column of march, by not allowing irregular intervals, straggling, or falling out, except during periodical halts, which should be frequent and at a distance from public houses. All marches are to commence at as early an hour as the season of the year will admit of.

After a march, the men are to occupy themselves in putting their arms and appointments in complete order.

Drunkenness, or irregularity upon a march, is to be considered as committed on duty.

When not likely to be engaged, it is desirable that the quartermasters and the camp colour men should march in rear of the main body of the advanced guard. This will save much time when the several columns approach their encamping ground.

No matter what the length of march, or how distant it may be from the enemy, all the precautions necessary when in his presence must be adopted.

Avoid marching through towns or villages. Go round them if it can possibly be done. When that is impossible, take every precaution to prevent the men from leaving the ranks. Under no circumstances should a temporary halt occur within such places. To avoid doing so, the place of exit must be kept clear. If any obstruction occurs a little in advance the column marching through the town must not be halted, but kept passing through and forming up beyond it, until the check has been remedied.

When starting, if in the neighbourhood of the enemy, the men must not burn up the straw and rubbish of their camp or bivouac.

Cavalry should, when it is possible, march upon a different road from the infantry. Indeed, unless the country is deep, the cavalry ought to make its way across it, leaving the roads clear for the infantry and artillery. Horses are fatigued if made to keep pace with infantry.

At the head of every column of less than a division should march as a detached body all the regimental pioneers, who should take their orders from the officer of the Q.M.G. department on the spot. This is not necessary when a company of engineers with tools accompany the column.

If the obstacle to be overcome is only a small one, care must be taken that only sufficient pioneers or engineers are left behind to accomplish what is necessary; the rest should go on with such portion of the column as can get on, notwithstanding the obstruction.

The discharge of any firearms during a march is strictly forbidden.

Our quick time is at the rate of 3·3 miles an hour, without halts.

The length of ordinary marches should be 12 or 15 miles. At the opening of a campaign, care should be taken to commence marching and encamping as soon as possible. When time is no object, march at first six miles a day, which ought to be done easily in two hours and a quarter or a half, according to the nature of the roads. If the men breakfast at 7 A.M. having struck tents at 6·30 A.M., and march at 8 A.M., they ought to be on their new camping-ground 6 miles off at 10·15, and their dinners should b ready at noon.

The length of the march to be gradually extended to 12 or 15 miles. March on as extended a front as possible, and in the most open order, when at a distance from the enemy. This is all the more necessary in hot weather and in the tropics. I have seen men drop down dying in India from being marched into action in contiguous quarter distance columns, in the centre of which the want of air was actually suffocating.

For this reason, fours is a bad formation in hot weather. Companies. sub-divisions, or even sections, are the best formations, to be adopted according to the breadth of road.

Officers commanding companies to be held responsible that the water-bottles are filled before starting. Take your men cool into camp, and do not allow them to remove their coats for half-an-hour after reaching camp.

When tents are up, the men not employed on fatigues should change their under clothing and wash well. The clothes taken off to be brushed or beaten and hung up in the wind.

In marching with other corps, officers commanding battalions must be careful to prevent anything approaching to a check taking place at the head of their columns. If a narrow bridge or gateway has to be passed, it should be done at the double or stepping out. General officers cannot be too severe upon commanding officers who are negligent on this point. This is one of the few occasions where the double should be resorted to on the line of march: if distance is lost, wait for a long halt to make it up, but don't tire your men by making them double for that purpose.

Whenever a stream, ditch, bank, or other obstacle is to be crossed, it will be generally found that, instead of defiling or diminishing the front, the very contrary should be done, not only, by causing the files of each section to open out gradually before they arrive at the ditch or obstacle, but even by forming subdivisions or companies.

When a bad place is to be passed the majors and captains will go to the head of their respective wings and companies, to see that any orders which may have been given are obeyed with regularity and steadiness. They will remain at the spot till the whole of their wings or companies have passed, and will then resume their stations in their rear, and give the words 'March at ease.'

It is of the greatest importance that the men should not on any account be hurried on the march; they are to be instructed that they are never to step out beyond the regular step, still less to double, unless by word of command.

No man is to remain behind or quit the ranks for any purpose, or on any account whatever, without permission from the captain or officer commanding the company.

Officers are never to give permission to any man to quit the ranks excepting on account of illness, or for the purpose of easing themselves, or for some other absolutely necessary purpose.

The officers must be particularly attentive to prevent the men from going out of the ranks for water. When this is required the regiment or column will be halted.

Men who obtain permission to fall out for a short time to ease themselves, or for any other cause than illness, must invariably leave their arms and packs to be carried by the section they belong to until they return.

In calculating the time occupied in marching certain distances, a division can march 2½ miles an hour if very well managed; but, as a rule, the time should be calculated at the rate of 2 miles an hour; this includes the ordinary halts: but if roads or bridges have to be repaired, of course extra time must be allowed.

RULES TO BE OBSERVED BY TROOPS IN PASSING OVER PONTOON AND OTHER TEMPORARY BRIDGES.

When large bodies of troops have to pass a river, and circumstances permit, three bridges will be made, one for infantry, one for cavalry, and a third for artillery and waggons* which accompany the force. Columns of infantry, artillery, waggons, and cavalry must not be mixed together in passing a bridge.

In passing over a pontoon, or other temporary bridge, infantry must break step, and all music cease; and files or sections must not be closed up.

Cavalry will, as a rule, cross in file, but never faster than a walk.

Wheel carriages of all kinds, including field artillery and artillery of position, up to the 40 pr. rifled B.L., with trained horses, are to cross fully horsed; with unsteady horses, carriages must be passed over by hand. Taking out the lead horses and crossing with the wheel horses only is strictly forbidden.

Halting on a bridge is to be avoided. If it be absolutely necessary to halt on a pontoon bridge, gun wheels must rest as nearly as possible midway between two boats. Artillery should cross at increased intervals. If the bridge sways so as to become very unsteady, the column must be halted, and not allowed to resume its movement till the swaying has ceased.

If heavy guns or traction engines have to be passed over pontoon bridges, special arrangements will be adopted.

These rules apply to all suspension, military, spar, and floating bridges.

Officers will incur grave responsibility if they cross a bridge otherwise than in the way recommended by the R.E. officer in charge.

Advanced Guards.—No body of troops, from an army down to a company, should march without being covered by an advanced guard. It fulfils for troops on the march the same duties that outposts do when they are halted, and the same rules apply to both.

Its object is to search the country in the vicinity of the roads by which a force marches, for the purpose of ascertaining what the enemy is about, so that he cannot possibly take it unawares. Its distance in front, and the distance towards each flank, which it must examine by patrols, by detached parties, and by means of scouts, depends upon the depth of the column or columns that it precedes, as it is essential that the main body should have ample time to deploy into fighting formation before the enemy should be able to reach it. It is impossible to lay down rules to meet every case regarding the exact distances to be maintained between the main body and the advanced guard, and between the component parts of the latter. The general principle, however, should be that under no circumstances shall it be possible for the enemy to open an effective artillery fire upon the main body, until time has been afforded for getting its guns into position, and its infantry formed up for their protection. The nature of the country, the state of the weather and of the roads, and the character of the enemy, have more or less influence upon this point.

---

* *This does not apply to* ambulance waggons, &c., accompanying regiments.

Its strength should be from one-fifth to one-tenth of the whole force. Its front should be covered by small parties of cavalry or mounted infantry, from which again scouts should be pushed forward on every road and footpath.

All ground that could afford cover to an enemy must be examined, and patrols sent to all villages upon the line of march. These patrols will approach the village or house to be examined with the greatest possible caution, files being sent round both sides of it to reconnoitre it well from several positions before entering it. Information should be obtained upon all such occasions from the respectable inhabitants.

Not only must the front be covered by what may be called 'moving outposts,' but the flanks must above all things be protected. It is assumed that the patrols sent out from the advanced parties, and the extent of front covered by them and their skirmishers, have rendered it almost impossible for an enemy to be concealed in sufficient numbers near the line of march to make any serious attack upon the flanks of the main body.

A detachment of engineers with tools should accompany advanced guards, to clear away obstacles, repair roads and bridges, &c., as directed by the staff officer that accompanies it.

It is very advisable that a detachment of the signal corps should accompany the advance guard, the officer or non-commissioned officer in charge of which can communicate with the signal parties sent to the high points in the neighbourhood.

All advanced parties and patrols should be instructed by the officer from whose company or squadron they have been detached, to make known the presence of the enemy to those in rear by means of some preconcerted signal, such as holding up the shako on the end of the sword or rifle, &c.

Entering a Defile or Hollow Way.—The head of an advanced guard must never commit itself by entering a defile or hollow way without previously occupying the heights on either side by flanking parties. When the heights are thus crowned, the leading party on the road will send on a single file, which will be followed by others in succession, near enough to keep the preceding one in view, the flanking parties on the heights on either side continuing to precede the centre until the defile is passed, when they will gradually fall back to their former stations, and the whole move forward in their original formation.

The Flanks of all Objects to be turned.—Generally speaking, the flanks of every object capable of affording concealment to the enemy, will invariably be turned, and the rear threatened previously to its being felt in front; by this means the enemy will be discovered and most frequently dislodged without loss.

Ascending a Hill.—On coming to a hill the flank files will first move in both directions round the base; a leading file will then ascend, creeping up when near the top so as not to show itself upon the summit, but making its observations from behind the brow; it will then signal to the rest of the party whether the enemy is in sight or not.

Rear Guards must be considered under two aspects :—

1st. As a small guard to close in a forward movement, to pick up stragglers, and if in an enemy's country, to be sufficiently strong to prevent a few armed inhabitants or small parties of cavalry from annoying the baggage or carrying off individuals.

It should march with flankers, particularly taking care to guard the flanks of the line of baggage.

It must on no account commence its march until all the waggons and baggage have moved off.

The baggage master or other transport officer should report to the officer commanding the rear-guard when all the *impedimenta* are formed up and moving off, and such officers should be in constant communication during the march. As most of the provost establishment must be with the baggage and rear-guard, the officer commanding should lend every assistance to the provost-marshal and his assistants, and take charge of all prisoners made by them.

No more disagreeable duty can fall to the lot of an officer or soldier than being with such a rear-guard. It is sheer hard work, without any excitement or glory. Under the most fortunate circumstances, when the force is large the men cannot expect to be in camp for some hours after the main body. It is most fatiguing to march in the dusty wake of an army, but it is on such occasions that officers show their true metal; any man can be cheerful and zealous with an advanced guard, or even with a rear-guard during a retreat, but it is only those who have the keenest professional feelings who can throw all their energies into every little duty, irrespective of its being agreeable or otherwise.

It would be well to punish irregularities on the part of officers while thus employed, by ordering them again on a similar duty, if necessary, without their own men.

THE SECOND CONDITION under which a rear-guard has to be considered is that when it is acting between the advanced guard of the enemy and its own army. The great object to be attained is to retard the enemy, which, with a well-disciplined army that has not yet engaged—as, for instance, the allies previous to Waterloo—is comparatively easy, but with a beaten and perhaps a demoralised army, is the most trying of all operations. The officer commanding such a rear-guard should be the best in the army; it is not necessary that he should be so *rusé* as the commander of an advanced guard, but he must be one for whom danger has at least no horrors: he must possess dogged determination, courage of the highest order, and untiring energy. Feeling the responsibility of his position, he must be at all times prepared to sacrifice himself and those under him to the necessity of the time, and for the safety of the army which he is protecting.

Rear-guards have no necessity for reconnoitring the ground to be passed over by them as advanced guards have to do, for the army having already marched over it, prevents the possibility of an enemy being concealed there.

A rear-guard of this nature must have no *impedimenta*. Indeed, officers should be without baggage altogether while so employed; it should be sent to the front, to march with that of the reserve.

The distance that a rear-guard should be from the main body depends upon the nature of the country, its numbers, and the manner in which the pursuit is conducted. If the pursuit is slack, and the rear-guard is composed of an infantry division and a suitable proportion of cavalry, it can safely be a march in rear. Under all circumstances, however, constant communication should be maintained between it and the main body.

If a few hundred infantry, selected for being good shots, can be mounted, they will be found invaluable with a rear-guard; working with the cavalry, they will enable a position to be held after the infantry have retreated. When seriously pressed, the horse artillery can limber up, and go off at the trot until it reaches the main body of the infantry, when these mounted infantry and cavalry skirmishing on foot, might run back to their horses, mount, and be off at the trot or gallop. The manœuvres of a rear-guard should be performed as much as possible in échelon, each échelon supporting the other, and retiring alternately when pressed.

In retreating over a bridge that it is intended to blow up, arrangements must be made that the fuse or saucisson that is to fire the charge cannot be got hold of by a sudden rush of the enemy. When all the troops have passed the bridge to be destroyed, all the disposable guns should be in battery, so that the ground immediately in front of it may be well swept by a heavy fire.

If hardly pressed, and the country is so enclosed that artillery and masses of troops can only move upon the roads, to set fire to a village after your artillery has got safely through, is a good means of retarding the enemy.

Care must be taken to burn and destroy all provisions, standing corn, &c. —in fact, everything that would serve as supplies for the pursuing enemy. His great difficulty will be to feed his army when moving rapidly away from his base; so everything that tends to increase that difficulty should be attended to. To retreat through a defile with a beaten army must be annihilation, if your enemy understands war; but if the main body succeeds in getting through it before the rear-guard has been overpowered, much time can be gained for the general retreat by an obstinate contest at both extremities of the defile as well as in it. The nature and length of the defile must determine the movements to be made; but provided that the heights on both sides have been well crowned by troops from the main body, for which there wil lbe ample time prior to the arrival of the rear-guard, the enemy ought to pay dear before his army can form up beyond the defile. It is a vulgar error to suppose that the most determined stand should be made on the near side of defiles; the entrance to them should without doubt be disputed, and the troops employed in defence should not be withdrawn until the enemy had deployed in force, and begun to scale the heights on either flank; of course the artillery should go first; having fired their last shot, the guns (to be the lightest of the army) will limber up and gallop off, their waggons having left previously. A strong line of infantry skirmishers to be well posted on the heights on both sides. The main body will then move off, followed by the supports. If possible the last line of skirmishers should be furnished by mounted infantry or good dragoons. When the supports had reached the entrance of the defile, these skirmishers should mount and gallop to the rear; they will soon be safe from the swiftest cavalry, for once past the line of infantry skirmishers posted along the flanks of the defile, the fire from these last will soon check pursuit. Whilst every inch of ground is disputed in the defile itself, the general in command should be organising a small line of battle at the far side, with batteries arranged to enfilade the defile, and cavalry ready to charge those first debouching from it; advantage being taken of the ground, the enemy's advance ought to be retarded a long time, and he should have had to pay dearly for his success, when he succeeds in drawing up his army on the plain beyond.

***Baggage and its* Transport.**—The principle of Regimental Transport *having now been adopted* in our army, it is to be hoped that it may be extended to the Auxiliary Forces, and that every regiment may soon have a sufficient number of trained drivers in its ranks. An officer (who will be provided with a Government horse) should be selected from each corps to take charge of its transport, and should be held responsible by his C.O. for its efficiency at all times: a sergeant (to be also mounted) should be permanently told off to assist him. C.O.'s should frequently inspect the waggons, &c., especially on the evenings preceding marches, to see that the animals are properly shod, and that everything is in working order. C.O.'s will be held responsible that the animals are not used for any but public transport duties.

On the march, the waggons of each regiment should be kept together, and not allowed to mix with those of others, and no private conveyances of any description should be permitted to fall into the column of route.

The baggage guard for a weak battalion should not exceed 1 sergeant, 1 corporal, and 10 privates: it acts under the orders of the officer in charge of the regimental transport, by whom it is distributed along the column of waggons as he may consider most advisable. Both he and his sergeant should frequently ride along their column of waggons to see that all goes on well, but, as a rule, the officers' place should be with the rear cart. Under no circumstances must the guard be permitted to ride on any of the animals, or in any of the waggons, or to put their arms or packs there. No straggling should be allowed, and all who transgress this rule should be at once made prisoners. The pace for all transport is the walk, and even when being used empty about a camp, any driver allowing his horses to trot should be sent back to the ranks. If a waggon falls behind on the march, it must regain its proper position at the walk during the next halt; the practice of making up lost space by trotting is strictly forbidden. If a load tumbles off, or a cart breaks down, the whole of the baggage of that regiment is to draw up on the near side of the road, allowing that of other corps to pass on. The guard must then, under the directions of the officer, repack the load, or, if necessary, distribute it in small quantities amongst the others. Officers commanding regiments should take steps for punishing those whose baggage tumbles off, for if carefully packed it would not do so under ordinary circumstances. All trains should, in England, move on the left hand side of the road. During war, when roads are sufficiently wide, it is a great matter to have the waggons two abreast, an interval of at least a yard being maintained between them. The distance between the tail board of one waggon and the noses of the leaders of that behind it, should be 4 yards. During all halts on the line of march the drivers should be ordered to dismount, with a view to easing their horses, looking at their feet, and arranging any displacement of harness. Any loose shoes should be at once reported to the farrier responsible for the shoeing. Every opportunity for "watering" should be taken advantage of, as it is essential that all horses should be watered at least once during each march.

On arriving in camp, the girths of all saddles or pads should be slightly tightened until the animals are cool, when the harness may be removed, and the horses watered, but they are not to be watered whilst they are in a heated condition, except during the march. To ensure freedom from sore backs, the greatest care must be taken of the numnahs, which should be cleaned well after each day's work, and the inner side exposed to the air to keep them soft; when in use, the centre cloak strap should always be passed through the loop at the top to keep them off the animal's withers, and to admit the air between the numnah and the horse's back.

The drivers to arrange the ration of corn so that each horse may have with it on the march one feed in the nose bag: the nose bags should always be removed from the horses' heads immediately they have done feeding. See the two next pages, On the management of horses.

When regimental transport remains stationary for more than one day after a day of marching, all requisitions for all, or any part of it signed by the control officer in charge of the division or brigade transport, must be complied with, so long as precautions are taken that it shall be available for the next march. These requisitions to be made direct to the O.C. the corps concerned.

The horses when picketed are never to be left without an orderly by day, or a sentry by night, who should be visited by the officer on regimental duty.

Baggage Master.—It is very necessary to have a good, active officer in charge of the baggage of each brigade. By him the baggage will be formed up daily at the beginning of the march, and during the march he will act as the S.O. of the F.O. of the day, who, commanding the rear-guard, can, if necessary, give him orders; but, unless under peculiar circumstances, it is better that he should leave him to make his own arrangements; supporting him if appealed to by him on questions of authority.

After the march he will report to the A.Q.M.G. all irregularities that may have occurred, or the negligence of any officer with the baggage guard, and will make suggestions regarding the baggage on future occasions.

ANIMALS USED FOR TRANSPORT PURPOSES.

THE HORSE may be said to be in the prime of life from 5 to 10 years old. The average walk of a horse is a mile in 16 minutes, 3·75 miles an hour, making 120 strides (110 yds.) each minute, the stride being 0·916 yd.; the average trot is a mile in 8 minutes (7·5 miles an hour), making 180 steps (220 yds.) each minute, the stride being 1·22 yd.* This is a slow trot: when going at a good pace, a horse trots easily 8½ miles an hour; the gallop is about 100 strides (352 yds.) each minute, that is, at the rate of 12 miles an hour, the stride being about 10 ft. The gallop of manœuvre in our cavalry is at the rate of 11 miles an hour. A horse occupies in ranks 3 ft. × 10 ft., and when picketed from 3 to 6 ft. × 9 ft. It has now been settled that all horses (artillery excepted, who still picket with ropes stretched between posts or waggons) are to be picketed by a fore-foot. In order that horses should become accustomed to this, it is advisable that when in stables they should be secured at all times in a similar manner. If this was carried out, horses picketed in the field would not tug at their fastenings, being aware from experience that they could not draw the pegs in stables, which would of course be securely fixed. The diet of horses should be carefully attended to, and an occasional change is most beneficial; half a bushel of carrots a day per horse has an excellent effect. Green food can be given occasionally with great advantage when horses are not doing hard work, but great care must be taken, when in the field, that horses do not eat as much as they like; whole squadrons of horses have died in a night from doing so. The daily ration of forage, whatever it may be, should be divided into three equal feeds, given one in the morning, one at mid-day, the other in the evening. They should also be watered early in the morning: always give river or lake water in preference to that from springs or wells. On the march, very little should be given before starting; let them drink a little frequently during the march. When picketed for the day, let them have as much as they like, taking care that they are cool at the time. Horses will eat leaves when grass is not to be had; those of the elm are the best. Chopped straw is a good substitute for hay; horses have done work for some considerable time on the thatch taken off houses. In rainy weather, grass should be piled in heaps, and the driest parts given first. When it can be done, it is a good plan to crush all corn, beans, and peas; when this cannot be done to the two last, they should be soaked in water for a few hours. Give sparingly all food that the horse is not accustomed to. Grooming in moderation is all that horses on service should have. That continual grind at 'stables' wears out men's spirit, and it is far from certain whether (carried to the extent it is in our service) it does not render horses very susceptible to cold when picketed in the open in bad weather, by opening the pores of the skin too much. In this, as in most other things about our army, we try to carry into the field the habits of life in barracks in England, and 'go in' too much for appearance.

---

* *A good trotter* will do from 7 to 8 ft. at a stride.

In grooming, begin cleaning at the off hind-quarter, and go to the head; first wisp and rub the dirt and dust out, and then brush until quite clean. All brushing is to be done against as well as with the grain, preserving as much as possible, a straight arm. No circular motions are to be allowed. The hand not immediately in use must be kept upon the horse, to prevent his closing too much on the groom. The curry-comb is also to be kept on the back of the hand, and never to be used on the horse.

Immediately after each day's march the feet are to be picked and carefully examined, heads and legs thoroughly wisped and feet washed, the backs carefully examined to see that they have not been galled or hurt in any way. The shoes should be looked to and loose ones refastened. All mounted officers should see to this themselves as grooms are careless. Wounds occasioned by kicks and sprains should be continually fomented with hot water at first, to reduce the pain and inflammation; cold water and bandages to be applied afterwards. If you can rest the horse for a couple of days, give a mild dose of physic. For bullet wounds, application of cold water as with men, is the only cure. All gashes, or sword cuts, must be sewn up as quickly as possible. Officers going on detached duty away from any veterinary surgeon, ought to take a small supply of horse medicine with them, such as balls, and discutient and astringent powders. Hoof ointment for brittle feet or sand cracks, is made of tar and train oil in equal parts. One part of this ointment with two of train oil is good for mange.

Shoeing.—A set of spare shoes, with nails, should be carried on service with every horse: these shoes should be especially made to fit each horse; and when a shoe is cast not a moment should be lost in having it replaced. If obliged to do so yourself, use the least number of nails that will keep it on for the time, and in driving them in, incline them well outwards, feeling for the end along the crust of the hoof with the fingers of the left hand; if, after the first few taps with the hammer, you do not feel the point coming out, draw the nail, and try it at another hole. A great part of the art is, in pointing the nail, to give it a slight bend outwards.

The shoe to be beveled off so as to leave a space, and prevent pressure on the sole.

It is not to be grooved, or fullered, but simply punched, and the nails countersunk.

Calkin is only to be applied to the hind shoe, and is to be confined to the outside heel. The inside heel to be thickened in proportion.

The weight of the shoe to be from 12 to 15 ounces, according to the size of the horse.

As a general principle, horses are to be shod with not less than 6 nails in the fore and 7 in the hind shoe; and the shoe is not to be attached with less than 3 nails on either side.

In preparing the foot for the shoe, as little as possible should be pared out, and the operation should be confined to the removal of the exfoliating parts of the sole.

Both fore and hind shoes to be made with a single clip at the toes.

The same shoe, unless very little worn, is not to be removed and reapplied in consequence of a horse having been sick. No hot shoe, under any circumstances, to be tried on a horse's foot.

Every horse to be newly shod once in a month.

THE MULE comes next and almost rivals the horse in usefulness for general military purposes. Their common load, including the weight of pack-saddle, is from 200 to 250 lbs.; height varies from 13 to 16 hands. They will eat almost anything, and require less careful management than the horse; the mule from the male ass and the mare is the best; their voices take after the sire. The real value of the mule is felt most strongly in mountainous countries.

DESTRUCTION OF RAILWAYS.—It must be remembered by all officers commanding patrols or small reconnoitring parties, that they are not upon any account to destroy railroads, without orders emanating from the General Commanding, for it is possible they might paralyse the future movements of an army by doing so.

A railroad may be rendered useless to an enemy by destroying the track itself, by destroying or removing the rolling stock, or by destroying the means of supplying fuel and water to the engines.

The subject must be considered under two heads.

1st. When from there being no likelihood of a railroad in an enemy's country ever being of use to you, it is advisable to destroy it in the most effectual manner possible.

2nd. When, from its being in your own territory, you do not wish to destroy great works, such as large bridges, tunnels, &c., &c., or when, from it being likely that you may again, in a short time, require it for your own army, you desire only to render it temporarily useless to the enemy.

1st. In destroying a line when time is of little consequence, the rails, chairs, &c., should be removed to the rear to be made use of as required on the lines in use by your army. In most instances, however, time is a great object, as such duty generally devolves upon bodies of cavalry, who have succeeded in cutting in upon the enemy's line of communications, and who have consequently to make all possible haste to escape being cut off. The most vulnerable points are large viaducts and bridges, particularly if they are made of wood: if of brick or stone, powder must be used to destroy them; when time permits the piers of the viaducts should be destroyed as near the ground as possible. In destroying woodwork by fire, whatever oil can be obtained from the neighbouring houses, should be poured over it to make it burn quickly; coal oil is the best. If there are tunnels, to blow one in at several points where the ground above is of a sandy nature, is the most efficacious means of blocking up a line.

In all deep cuttings where there are retaining walls, a few charges of powder exploded judiciously behind them soon fill up the cutting. If telegraph wire and fallen trees are intermingled with the débris, the work of clearing it out is rendered much more difficult.

Some countries are so level that railroads running through them present no bridges or embankments for great distances. To destroy the rails and ties, or sleepers, is therefore the only means of rendering them useless.

Curves should always be selected, as it is more difficult to repair them than straight pieces of the line. To tear up rails is not so easy as all may think. On railroads, the workmen draw the spikes with clevis bars and claws, and unscrew the nuts and bolts with wrenches, all of which are too heavy to be carried by cavalry soldiers.

When there is plenty of time, the wooden ties or sleepers should be made into long piles and set fire to, the rails being placed across them, and when sufficiently hot in the middle bent up into the shape of a U, or round a tree or telegraph pole. It is of the greatest consequence that rails should not only be bent but twisted as well, for if only bent they can easily be straightened if well twisted, they must be re-rolled before they can be of any use.

To destroy Locomotives.—It is most desirable that all officers should make themselves acquainted with the several parts of the machinery named in the following paragraphs.

Draw off the water from the boiler, light a large fire in the fire-box; this will destroy the flues. The most efficacious method is to fire a round shot through the boiler. The latter plan should always be adopted when it is possible to do so.

To disable Locomotives without permanently injuring them.—Remove to a place of security, or hide any of the following pieces of the machinery—The pump rams, clacks, or delivery pipes; one or both safety-valves; the mud plugs of boiler; the link connecting the slide valve to the valve gearing; eccentric straps; one or both cylinder tops or covers. To fill the suction pipes of the pumps with melted resin or lead, or even with cotton waste or tow, would be temporarily effective, and many hours might elapse before the cause of stoppage was discovered.

To disable Tenders in a similar manner, remove the hose pipes, coupling bar and chains between engine and tender, or the brasses from the axle-boxes.

To disable Passenger Carriages, Trucks, &c., without permanently injuring them.—Remove one or both wheels [or in American cars one or both trucks.] Take off the axle guard or the bolts from one or two of the guard plates; the brasses from the axle boxes, or the draw bars. The two last are most easily effected.

To destroy Passenger Carriages, Trucks, &c., burn them.

In fine all piles of coal or other fuel should be burnt, the water tanks and the pumps used for filling them destroyed, and all shops for the repair of engines, &c., and everything that will burn, set on fire.

2nd. *To render a line temporarily useless*, so that whilst it would take much time for an enemy to repair it, you could do so quickly yourself, will depend much upon your respective resources. If you know that he cannot provide rails, remove a hundred yards of them at various intervals; if he has no supplies of telegraph wire on hand, remove it. Remove the pistons from all the pumps supplying water to the tanks; provided that you can easily replace them, you can even go so far as to destroy a bridge; take care that all rolling stock and fuel is removed within your part of the theatre of war.

Railway communication was upon many occasions temporarily intercepted by the cavalry during the late Southern struggle for independence, in the following manner; a high embankment having been selected, a couple of thousand men were dismounted and formed in single rank along a rail, but outside of it, and facing inwards. The rails at both flanks were disconnected, so that the portion of the line to be torn up occupied by the single rank of men was not fastened to the rest of the line. Upon a given signal the men stooped down and grasped the rail, and upon another signal all lifted it up to a vertical position, with the ties fastened to it, and then let it fall over on the other side down the embankment. The rails could not then be replaced without unfastening them from the ties, and relaying the whole superstructure. When the ties or sleepers are very firmly fixed in the ground, the operation of overturning a section as described can be facilitated by using poles or rails as levers under the rails.

To destroy Telegraph Line.—Pull down a pole so as to get at the wire, and then cut it in several pieces: the more poles destroyed the better. This is, however, easily repaired. An admirable plan for destroying communications is by means of non-conducting wire having the outward appearance of the ordinary wire in use. Being furnished before starting with some of this wire, and the tools used in repairing telegraphs, send a man experienced in such work up a pole, and let him there cut the wire close to it, uniting it again by the non-conducting wire spliced on in the usual manner. This should be done at several places along a line, and always at a pole. The result will be that, although all galvanic communications will have ceased, a man merely marching along the line shall not be able to discover where the break exists; one must go from post to post with an instrument to test each intervening portion of wire before the exact spot can be ascertained. It is advisable that a pole here and there should also be destroyed, and the wire cut, so that it should be supposed at first that the interruption simply resulted therefrom.

MOVEMENT OF TROOPS BY RAILWAY.

In England we may, I think, assume 34 to be the maximum number of carriages in any one train carrying troops.

First class carriages hold from 18 to 24 passengers.

Second and third class carriages hold generally 32 passengers; but some few of the former hold 40, and some of the latter as many as 50. For soldiers carrying their arms and packs 8 men should be allowed the room required for 10 civilian passengers. As most carriages will exactly take four soldiers on each seat, when marching to the platform to get into a train, the men should be in "fours" (the N.C. officers having been previously distributed through the ranks, so that each carriage may have a fair proportion). A section of "fours" will thus be in each compartment.

A horse box holds 3 horses; cattle trucks hold 8 small horses, or 7 large ones, all being saddled or harnessed: they are placed across the truck.

An ordinary truck will take any one gun (up to a 40-pounder gun of position) or any waggon with its limber; or one General-service or ambulance waggon, or two carts.

The strictest silence must be enforced from the moment of approaching the station until each train is loaded and is away clear of the station. This is of the utmost importance, for if noise or singing is allowed in the station, and there are many troops to be despatched, confusion will be unavoidable.

Infantry will be halted outside of the station. The men will be ordered to take off their packs, and to shift their pouches, haversacks, bayonets, and water canteens round to the front of their bodies; both straps of the haversack are to be worn outside the waistbelt, so that the former may be shifted without difficulty. This done they will receive the order to get into their carriages, each man taking with him his arms, knapsack, &c.

Each man is to retain possession of his rifle, unless the commanding officer should think fit to allow the arms to be placed upon the packs under the seats, but they are never to be laid upon the floor of the carriage.

When the train is ready to proceed, the 'Advance' will be sounded. Silence must be maintained until the train moves off. No shouting to be allowed, and no man is to put his head out of a window, leave a carriage without permission, or to get out on the reverse side of the train, except when ordered by his officers to do so.

On arrival at the place agreed upon for the train to halt, the officers will get out and go to the men's carriages. Sentries from the quarter guard will be posted to prevent the men from straggling or getting out at the wrong side of the train. When these arrangements are completed the 'Halt' will be sounded, and those who require to do so will get out of the train, leaving their arms in the carriages.

When it is time to proceed, the 'Close' will sound; on which the men will all return to their carriages. The officers will see that their men are all present, and, having so reported to the commanding officer, the sergeant of the guard will be ordered to withdraw the sentries and return to his carriage. Lastly, the officers will get in, and the commanding officer will give directions that the train may proceed.

When it is intended to water and feed the horses of mounted corps during a halt the 'Feed' will be sounded; when the men will get out of their carriages and proceed at once to the trucks containing their horses, water in buckets having been provided by previous arrangement. One man will then get into the truck, and water each horse in succession, the buckets being passed to him from the outside. The horses may then be fed with corn from the nose-bag in the usual manner.

Cavalry.—On arrival at the station the men will dismount, each man taking nothing but his carbine, except when the cloak is required for wear, and they will then be told off, so many to each carriage.

Having deposited their accoutrements on the spot selected, and in the same order in which they stood in the ranks, they will be told off into sections according to the capacity of the trucks.

The sections will be numbered off from the right of the squadron, and they will afterwards file from the most convenient flank, each halting opposite the truck marked with the number of the section. A quiet horse should be selected to go in first, followed by No. 1. of the front rank of each section, and then his rear rank man. Should a horse be very restive, backing him in will generally succeed.

As a rule, the first horse is to be led in and secured to the opposite side of the carriage by the bridoon reins and the head collar chains, either to a ring placed for the purpose, or to the bars of the truck. The other horses will follow in order, each dragoon taking off the bridle bit, hanging it round the horse's neck, and leaving the truck the moment he has secured his horse.

The horses' heads, when it is possible, should be placed facing away from the second line of rails, as the horses are easily frightened by trains and engines passing. The moment the last horse is in, the door must be at once shut, and the fastenings of the trucks afterwards carefully examined by a railway official.

A non-commissioned officer and a couple of intelligent men from each troop, previously told off for the purpose, will go round and examine the fastenings of all the troop horses, and make such alterations as may be necessary under the personal superintendence of the troop officers.

When all the horses of a section have been embarked, the men should at once proceed to the spot where they have left their arms, cloaks, &c., which they will resume and fall in; they will also be desired to remember the number and position of the truck containing their horses, and to fall in, in front of it, when they are ordered to disembark.

On arrival at the destination the 'Halt' is to be sounded; when the men will get out and fall in opposite the carriages, and will be marched to some convenient spot, selected by the commanding officer, to deposit their arms and cloaks. They will then fall in again near the trucks. Should, however, the cloaks have been left on the saddles, the men can get the horses out with their swords on and carbines under their arms.

The door of each truck is then let down, and a mat or loose straw, if it can be procured, spread upon it, the horse opposite the entrance is to be immediately bridled and led or backed out by the man to whom it belongs; the horses to the right and left following it in turn. The troop will then be formed up in the most convenient place, and the horses again held until the arms, &c., are resumed and placed upon the saddle.

The embarkation and disembarking of the officers' chargers from the horse boxes should go on simultaneously with that of the troop horses, but if possible at a different part of the station.

When the arrangements before detailed are properly carried out, the train can be ready to start in half an hour from the time of beginning to load. Even less time will be sufficient for unloading.

No hay or straw should under any circumstances be left amongst the horses; all forage required that cannot be obtained on the road, should be taken in closed-up waggons.

The closer horses are packed together in the carriages the better.

Artillery.—On the arrival of the battery at the station it should be drawn up in the nearest convenient spot. The men will dismount, and after being permitted to fall out for necessary purposes, will then be formed up two deep, take off their packs (if horse artillery, their swords), and some convenient place being selected, will lay them on the ground in the order they stood in the ranks.

The horses will then be unhooked, the traces hooked over their backs in the usual manner, and told off in sections according to the capacity of the cattle trucks; each section will then file off to the truck allotted to it, under the direction of the officer commanding the division, and be embarked in the same manner as laid down for cavalry. The gunners will assist the drivers in the embarkation of the horses, and on the conclusion of this duty the whole will proceed to embark the *matériel*.

In embarking the guns, waggons, and carriages, trucks loading from a dock are, if possible, to be used; when, as is the case on some railways, the ends of the trucks let down and meet, the carriages of the battery may be run on from one to the other in a few minutes. These trucks, however, are not so convenient when there are no docks or other facilities for unloading, and should in such cases be avoided.

Trucks having sides letting down are next in point of convenience; and lastly, low-sided trucks.

Carriages must, when loaded from a dock, be run on to the truck unlimbered. The wheels must be well secured with lashing rope and scotches, the latter being generally procurable at railway stations. Should there be hay on the waggons it is not to be suffered to remain during the journey, but must be placed in a luggage van.

Low-sided trucks are found on most railways; the loading on these requires more manual labour than on other trucks, as it is necessary to lift the carriage over the sides by main force. The gun (or waggon) and its limbers are to be placed on the *truck with the trail* (or perch), and the shafts pointing inwards and resting on the *floor.*

There are some trucks on which more than a gun and limber may be placed, reference being always had to the weight which they are calculated to bear. In loading, the gun should first be placed on the truck close to one end, the trail on the floor; then its limber is to be backed upon it as close as possible, the shafts resting on the floor; the waggon limber is then to be placed on the truck the reverse way to the first limber and its shafts elevated. Finally, the waggon body is to be embarked, perch pointing inwards and resting on the floor.

This mode of conveyance requires much lashing, and these large trucks are not recommended when others can be obtained. When used, they should, if possible, be loaded at the end, as the operation when performed from the platform is most laborious.

No projections, whether guns, shafts, or spare wheels, are on any occasion to extend beyond the buffers.

The carriages being embarked and secured, the gunners will take up their knapsacks (or swords), and the whole detachment fall in two deep and be told off in squads corresponding to the capacity of the compartments of the railway carriages.

On the arrival of the train at its destination the officers will get out first, and the trumpeter will be ordered to sound the 'Halt,' when the men will descend. The gunners will fall in and be marched to a convenient spot to deposit their swords or knapsacks.

In the event of the platform not being of sufficient length to enable the entire train to draw up alongside it, the horses are to be disembarked first. The door of each truck is to be let down, a mat or straw placed upon it, and the horse opposite the door led or backed out, the rest following in turn. The horses are to be formed up at the discretion of the commanding officer, and the carriage trucks brought alongside the platform.

The guns, &c., are to be taken off by the gunners, and whether this is done at a dock or at the platform, the horses of each carriage are to be hooked in as soon as it is disembarked, and the carriage will be drawn to the place of parade indicated by the commanding officer, so as to clear the ground as soon as possible.

Should it be possible to disembark horses and material simultaneously, in consequence of the capacity of the platform, it may be done. When this is the case, the gunners being unable to assist in disembarking the horses, the non-commissioned officer of drivers is to take the first horse of each pair out of the truck; the driver following with the other, is then to take charge of both horses.

As it may become necessary to disembark without the aid of a platform of any sort, some strong skids, not less than 15 feet long, and some planks to form a ramp, should always be carried. In case of urgent necessity two lengths of rail may be used for this purpose; but it is believed that a small temporary platform may be made by the employés of the railway in a sufficiently short time in ordinary cases.

A battery, if well managed, ought to be placed in the train in from about 30 to 40 minutes.

FOR HOME

RATION RETURN of the _____ Regiment of ________________ at _______________ for

Day of Month.	Provisions.	Forage.					When Encamped.						
		Horses.			Extra for Horses employed on draught.		Fuel.						
					Rations of								
	N.C. Officers, Rank and File.	Officers.	Troop.	Do. employed on draught (not to be included in preceding column).	2 lbs. of oats.		Field Officers Commanding.	Field Officers not Commanding.	Troop or Company for Officers and Sutler.	Surgeon.	Paymaster.	Adjutant.	Riding Master.
	Numbers of.												
1													
2													
3													
to 31*													
Totals													

In this space show the particular Pay List or Account in which the stoppages will be credited to the Public, inserting Company for Royal Engineers, Brigade for Royal Artillery, &c.

---

* *There should be 31 lines in this return, one for every day in the month: space would not admit of all being shown here.*

No. I.

SERVICE.

W. O. Form 789.

Provisions, Forage, Fuel, and Straw, daily, from ____________ to ____________ 18____.

	WHEN ENCAMPED.												Signature (daily) of the Quartermaster or other Receiving Officer to the quantity required.
	Fuel.							Straw.		For Hospitals.			
										Light.			
	Quartermaster.	Assistant Surgeon or Veterinary Surgeon.	Servants, not Soldiers.	Washerwomen.	Sick in Hospital.	N.C. Officers, Rank and File.	Oil.	1st Issue.	2nd and 3rd Issue.	Candles.	Oil.	Straw.	
	Numbers of.							No. of Trusses of 36lbs. each.		lbs.		Trusses of 36lbs.	

____________________________________ **Commanding Officer.**

Place ____________________________________

Date ______________________

N.B.—See Remark opposite.

Certified as to the number of Men in Hospital, and of the quantities of Fuel and Straw necessary for *Hospital use.*

____________________________________ **Surgeo**

APPENDIX No. II.

In duplicate. **W. O. Form 118**

REQUISITION.—CAMP EQUIPMENT.—RESERVE FORCES.

122nd Regiment, Middlesex Rifle Volunteers.

Required for the * *Regiment* under my command the undermentioned articles, w **I certify are herein** demanded in accordance with regulation, and which I promis **return into store** on the completion of the service for which they are required.

Date, *Aldershot*, *10th July*, 187

Distribution of—	Troops or Companies.	Field Officers.	Officers.	Staff Sergeants.	N.C. Officers, Drummers or Trumpeters, Rank and File.	Horses. Officers Chargers'	Horses. Troop, ridden by Officers.	Horses. Troop.	Horses. Public Bât Animals.	Remar
Effectives present	8	3	20	5	600	4	..	..	..	
Numbers absent	..	..	4	1	100	..	..	..	..	
Total for whom Camp Equipment is required	8	3	24	6	700	4	..	..	..	

Number of Articles allowed by Equipment Regulations, 1870.	Articles.	Numbers in possession.	Numbers now required.	Remar
6	Axes, helved { felling ..	..	6	
18	Axes, helved { pick	..	18	

(Signed) *Henry Ash, Lieutenant-Colonel Commandi*

The Controller at *Aldershot*.
Supply ordered from Depôt at *Aldershot*.
(Countersigned) *Chas. Granet.*
Controller at *Aldershot*.
Date, *10th July*, 1879.

I hereby authorize *Quartermaster Jones* to receive above-named stores on my be

(Signed) ***Henry Ash, Lieutenant-Colonel Commandi***

Received the above-named stores.

(Signed) ***Jno. Jones, Quartermaster,***

Date, 11th *July*, 18

---

* *Here state* Regiment, Battery, Troop, or Company, as the case may be.

LONDON: W. CLOWES AND SONS, STAMFORD STREET AND CHARING CROSS.

BY THE SAME AUTHOR
THE SOLDIER'S POCKET-BOOK
CHEAPER EDITION [illegible]